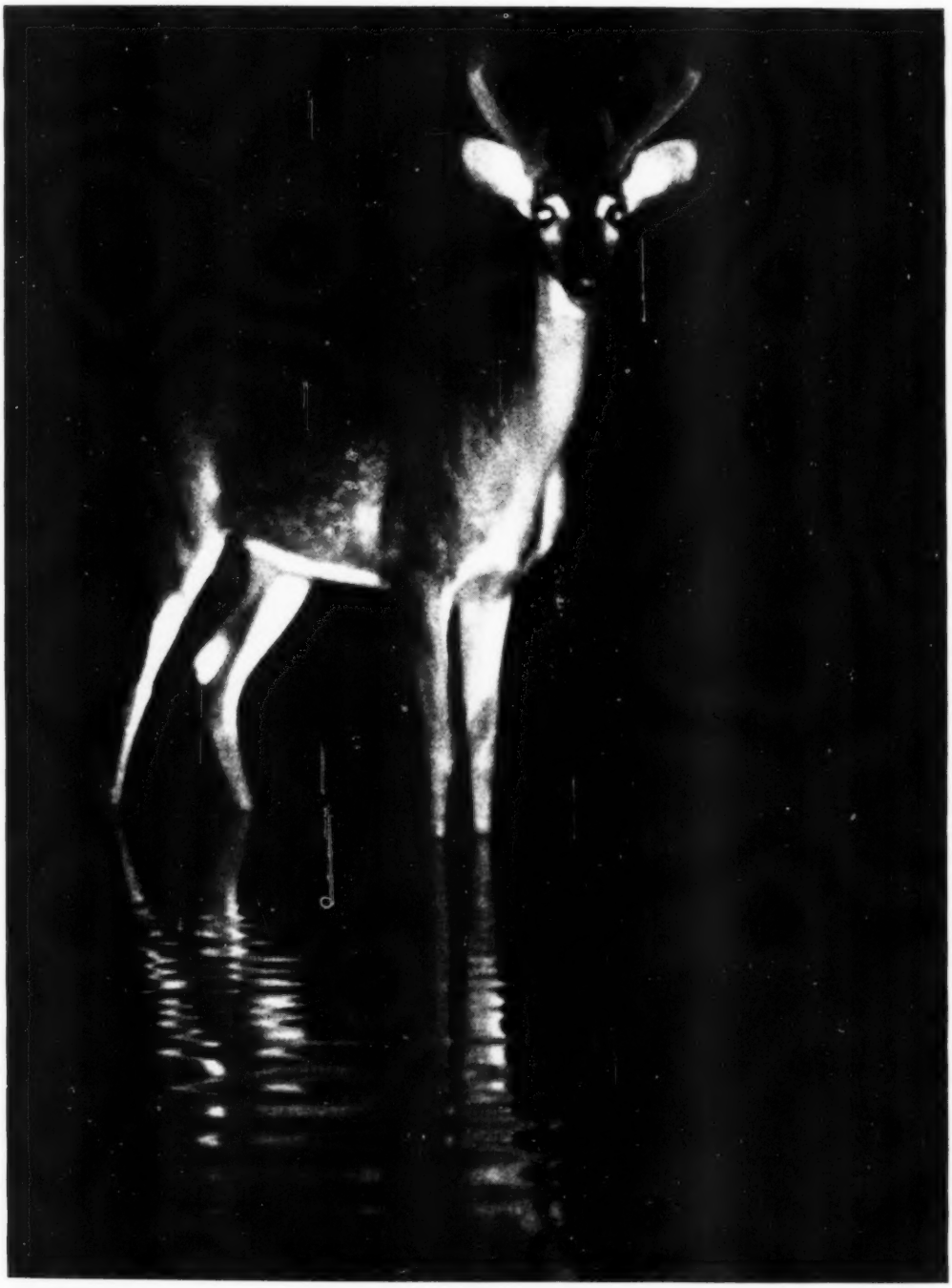
American FORESTS



AUGUST 1935

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AMERICAN FORESTS

OVID BUTLER, Editor
L. M. CROMELIN and ERLE KAUFFMAN, Assistant Editors

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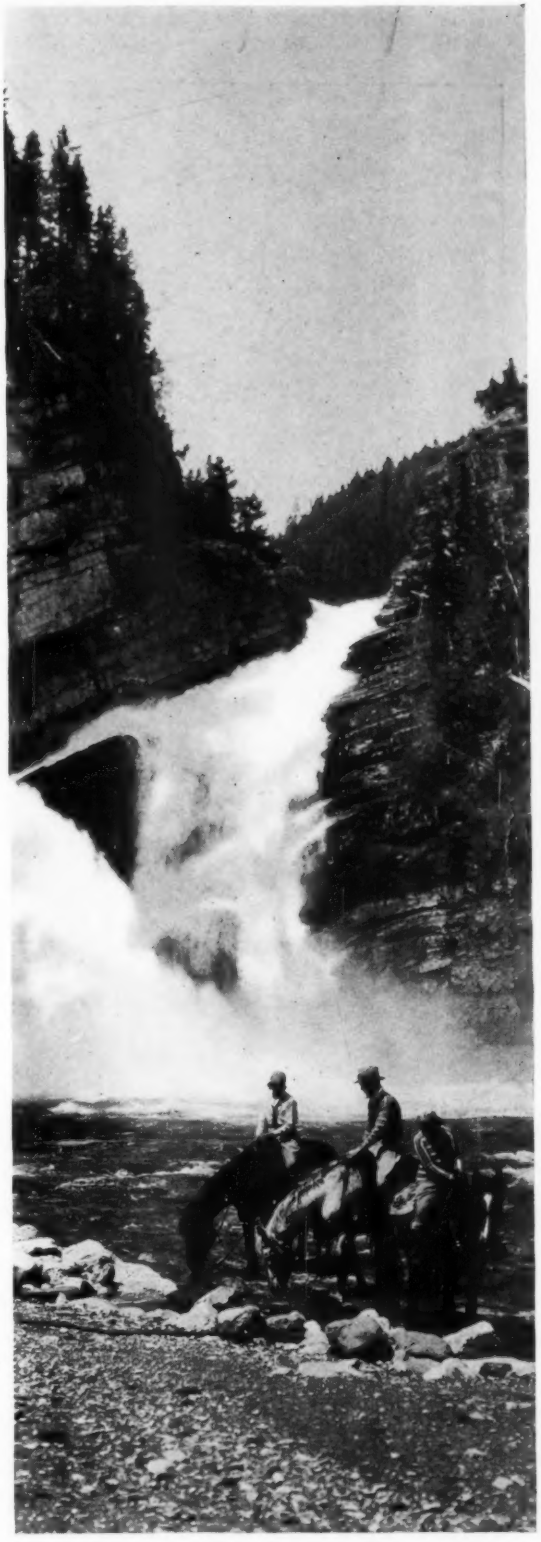


ON THE TRAIL

"The sounding cataract
Haunted me like a passion: the tall rock
The mountain, and the deep and gloomy wood,
Their colors and their forms, were then to me
An appetite; a feeling and a love."

—WORDSWORTH

Photograph by Theodore M. Wurts, made at Branch Brook Park, Newark, New Jersey.

"Birch Reflections"

As an Example of Outstanding Photographic Art in Recording Tree Effects, the Above Photograph was Awarded Third Prize in the 1934 Contest of The American Forestry Association for Beautiful Photographs of Trees in America

AMERICAN FORESTS

Vol. 41 AUGUST, 1935 No. 8

FIFTY YEARS OF CONSERVATION

NEW YORK TO CELEBRATE HALF CENTURY OF PROGRESS IN THE CONSERVATION OF ITS FOREST RESOURCES

By SAMUEL N. SPRING

THE great forests and mountains of the Forest Preserve are the foundation of conservation in New York State. Out of a period of disposal of these lands through sale and grant by the State, and of destructive fire, logging and plundering, there emerged a policy of state ownership based on a realization of the great future value of these forest areas to the State. It is a story much like that of the forest resources of the national Public Domain and the final emergence of the Forest Reserve policy. Much discussion and debate of forest preservation took place even as far back as 1850, but accomplishment came far later.

Fifty years ago, the legislature of the State of New York passed an act creating a forest commission and two forest preserves--one in the Catskill and one in the Adirondack Mountains. The act marked the real beginning of state forestry in the United States and formed the foundation upon which New York during the intervening years has built a record of conservation achievements unparalleled by any other state in the Union.

Mr. Spring's review of the highlights of that record is a timely contribution, in that next month the State will commemorate its half century of conservation progress by a three day celebration--September, 12, 13 and 14--at Lake Placid in the Adirondack Mountains. The American Forestry Association will participate in the rally, celebrating its sixtieth anniversary by holding its 1935 annual meeting at the same time and place. The dates of the Association's meeting are September 12 and 13.--EDITOR.

It was in the sixties that the idea of an Adirondack park seems to have been first publicly advocated. Greater knowledge of the region and its problems was gained by investigations of a commission set up for the purpose, and detailed information was gained by Verplanck Colvin's famous survey of the Adirondacks in 1873. In his report of 1874 relative to this survey, he definitely recommended a State Reserve. It was a decade before bills were introduced into the legislature looking toward the accomplishment of this policy which had been urged by governors, backed by men of broad vision and supported vigorously by the New York City organizations. Success did not crown first efforts. Various bills were revised and consolidated until one bill finally gained adequate support for passage.

Fifty years have elapsed since the first forest administrative act in this country was passed by the State of New York and signed by Governor David B. Hill on May 15, 1885. It is an event well worth celebrating in the light of all that followed this fundamental act. The amazing thing about the law, considering the limited knowledge of forestry by the people in that early day was what it included. Not only did it establish and define the duties of a forest commission but it created the Forest Preserve, provided for its administration and protection and in addition laid the foundation for much that has followed by making provision for public instruction in forestry, for dissemination of information on tree planting and on the care of forests on private lands.

This initial act creating the Forest Preserve included the Catskill counties of Ulster, Greene and Sullivan. The fire laws and fire warden system deserve special mention since they are among the earliest of such provisions in the United States that looked toward systematic protection of public and private forest land. Among those who greatly influenced the character of the legislation in this and other respects, Dr. Franklin B. Hough should be mentioned and the federal influence coming from Dr. B. E. Fernow. The Commission created by this law of 1885 was given care of the Forest Preserve and charged "to maintain and protect the forest and to promote growth."

The Sargent Commission that investigated the forest situation in the Adirondacks and Catskills in 1884 and that was influential in furthering the fundamental act of 1885 brought out the importance of the region as a source of water supply. This was given the place of first importance in the report. Second to this the recreational value of the forests was recognized and mention made that "many thousand persons visit every year the Adirondack lakes and mountains in pursuit of repose, recreation and health" and that "the whole region is one of the most accessible, salutary and enjoyable summer resorts in the United States."

The Commission further said "The State should first demonstrate its ability to protect the forests which it already owns and develop a wise system of forest manage-

The Sargent Commission that investigated the forest situation in 1884 stressed the recreational value of the Adirondacks and Catskills as second only to their value as a source of water supply for New York's great metropolitan areas. The above camping site, in Allegheny State Park, is typical of the many developed for the enjoyment of the public.

ment applicable to these lands, before the question of purchase of other lands of the same character can be seriously considered."

The original act contained the words which in approximately the same form became the substance of Article 7, Section VII, an amendment of the State Constitution, in 1895. "The lands now or hereafter constituting the Forest Preserve shall be forever kept as wild forest land. They shall not be sold nor shall they be leased or taken by any person or corporation, public or private."

Little was known as to methods of forest management applicable to these lands and the unsatisfactory results of timber cutting which was permitted by the Commission between 1885 and 1895 in no small part gave rise to the constitutional amendment. A further important influence at that time was the great emphasis of the value to the forests for health and recreation.

The Forest Commission's duty to "maintain and protect the forest and to promote growth" has been fulfilled through the years to the extent chiefly of protection of the forests from fire and trespass, of restocking denuded and burned areas and of pruning and thinning planted forests. It was a tremendous task, however, to obtain by progressive steps the present attitude of respect and appreciation of the Forest Preserve, to free it from trespass and to reduce the fire danger by efficient methods of fire prevention and control.

The area of the Preserve in 1885 was 715,267 acres, mostly land that had reverted for the non-payment of taxes. The present area of land and water aggregates 2,369,224 acres, chiefly acquired by wise purchases running through the intervening years. The total of appropriations for land acquisition between 1883 and 1909 was approximately $4,000,000; bond issues subsequently made available, $12,500,000. The value of the Preserve far exceeds the cost. It is a mighty realm used by thousands, a magnificent monument to that first forest administrative act of 1885.

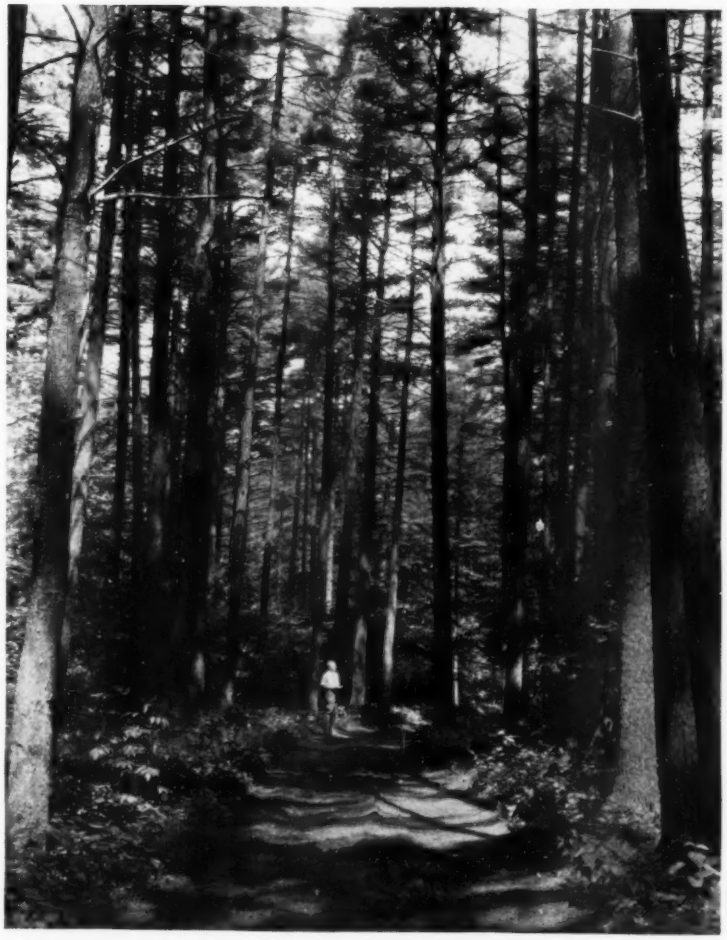
Looking back over fifty years is like reviewing one's lifetime, smiling over early crude efforts, viewing with satisfaction the steps of progress over the years, fighting over again the battles necessary to keep a singleness of purpose and to ward off enemies.

It is a far cry from an unpaid commission of three men dealing chiefly with State lands, having an appropriation of $15,000 and no regular office space, to a State

In pursuit of repose, recreation and health. State parks have been strongly supported in New York, the idea having found expression in the creation of the Adirondack Park in 1892. Above, Lake George is shown in the distance.

Conservation Department headed by a commissioner having expenditure of $3,000,000, extensive offices in the State Building, and state-wide functions covering almost every phase of conservation. The progress from employment of a few untrained special agents to a great trained personnel of experts is in itself a long history of the efforts of public-spirited men who gave unstintingly of time and effort to guide conservation through these fifty years, and of technically trained men who have been untiring in their work.

New York State developed fire laws and a fire warden system that were considered very good as early as 1890. It was the terrible conflagrations of 1903 and of 1908 that brought about changes which resulted in efficient modern methods of prevention and control. A law requiring the lopping of tops in logging operations to reduce fire damage was also enacted. The new plan formulated in 1907 included observation towers, the burning of oil during the danger seasons in locomotives on railroads going through the Adirondacks, paid patrol of railroad right-of-way and clearing it of debris, more stringent laws to curb careless use of fire, and executive power to close the Preserve in the emergency of excessively fire-dangerous seasons. The organization of fire districts in 1909 was an important measure of better control and this has been extended to other sections of the State.

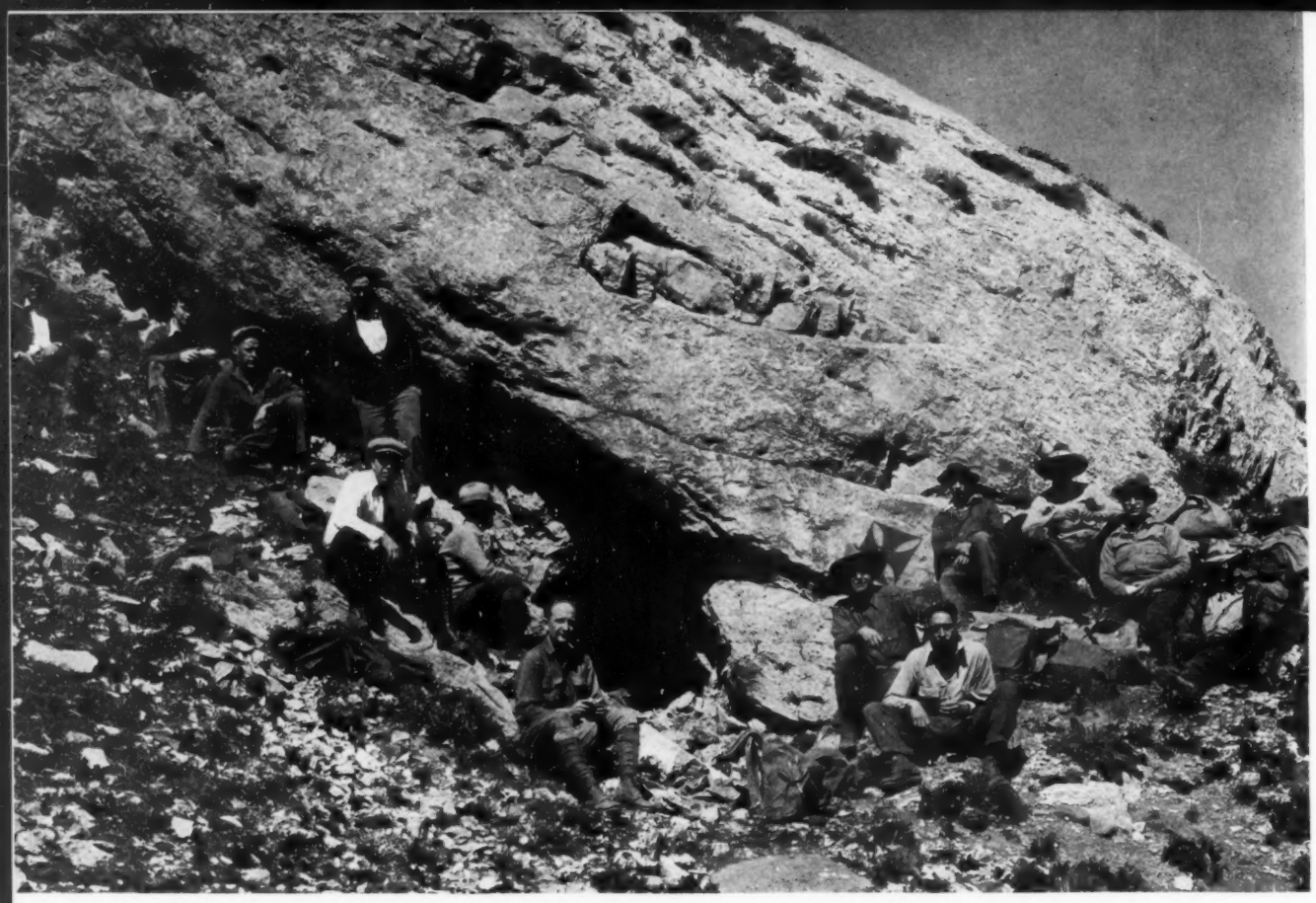


Reforestation by planting, which was provided for by the Law of 1885, has been one of the greatest accomplishments in New York. Above is a plantation of Scotch pine, in contrast with virgin white pine, below, for which the Law provided protection.

Today the fire organization covers fifty per cent of the area of the State and practically all the important forest land. Seventy-five observation towers and modern equipment, including an airplane, have enabled the Department to cope effectively with fires starting in recent years of unprecedented drought. The Federal Government through cooperation under the Weeks' Law of 1911 has participated, as in other states, in the development of protection from forest fires by allocation of funds for this purpose.

Reforestation by planting, which was provided for by the Law of 1885, has been one of the greatest accomplishments by the State. Although sporadic private planting antedates state activity, nevertheless the basis of real progress originated in state policy. One, therefore, finds the beginnings of this work in the Forest Preserve.

(*Continuing on page* 394)



Here, grouped at the entrance of the mysterious Spanish Cave, are the explorers—members of the Colorado Association, the Colorado Mountain Club and the United States Forest Service. The ancient Maltese Cross on the rock may be seen just back of the head of the Forest Ranger with the wide hat.

EXPLORING CAVERNA DEL ORO

By RAYMOND W. THORP

Photographs by the Author

THE mystery of the Sangre de Cristo Range, in Colorado, still challenges the explorer. Like a great stone god, the old mountain steadfastly refuses to give up the legendary secrets which native folk say abide in her hidden caves. Attempts to solve her riddles have only increased them. To all concerned, explorer and layman alike, she remains the mystery mountain.

It was only several years ago that two printers on vacation climbed the 12,500 feet to the top peak of Marble Mountain, the queen of all those which make up the Sangre de Cristo Range. Their minds were prepared for mystery, shrouded in the hood of old Spain, whose sons named most of the wonders of nature in that locality. Sierra Blanca, Crestone, Culebra, and a multitude of other titles grace the landmarks of the countryside. Peering a little toward the east, these two modern Sinbads discovered a large Maltese Cross emblazoned on a flat-surfaced boulder. Going closer, they found it was not painted with colors which would soon fade but was burned into the stone with what must have been iron oxide. Near it was a foreboding cave, the secret of which must have been closely associated with the sign. The eery solitude, the jagged, volcanic rocks, and indications that the cavern's history must have dated back in centuries persuaded them here was something of importance. They did not dare, with their meager equipment, feel their way into the mountain's dark recess, but they did mark down in their mind the particular location.

Was the cross a ritualistic symbol with which earlier settlers marked the entrance to a place where strange events had occurred? Was it a good omen which invited those who saw it to prod deeper into unraveling its meaning? Or did it locate the trail where fabulous wealth was buried long ago? These, together with unnumbered other questions, haunted the two vacationists. It was not left for them to question further, for the time of their holiday was over. However, they did spread the news, and a group of historians and mountain men made preparation to explore the cave.

These included Carl Blaurock and Orville Hough, of the

View of the Wet Mountain Valley, east of the Sangre de Cristo Mountains in southern Colorado, from the Spanish Cave on Marble Mountain. The old fort and rifle pits, both of which occupied commanding positions, are indicated by the cross.

Colorado Mountain Club, Dr. Leroy Hafen, secretary of the State Historical Society, H. G. Eisenhand and Edgar McMechen, of Denver. They arrived at the ranch of Casper Heinrich, which is situated west of the Wet Mountain Valley, and at the foot of Marble Mountain. There they were met by Forest Rangers Gilbert and Truman, and "Buttons," a native guide, who had traversed almost every hidden trail in this southern Colorado caravan of mountains. But the mysterious cave had eluded him in his explorations.

This official expedition gazed upon the austere cross only a fortnight after the two printers had made their eventful discovery. But what an enigma it presented! A corner of the symbol had been chiseled away, and the smoky smell of powder revealed too clearly that a vandal, after finding chiseling a too arduous task, had sought to blast away the entrance. The inky-black mouth of Caverna del Oro stared grotesquely at the strangers.

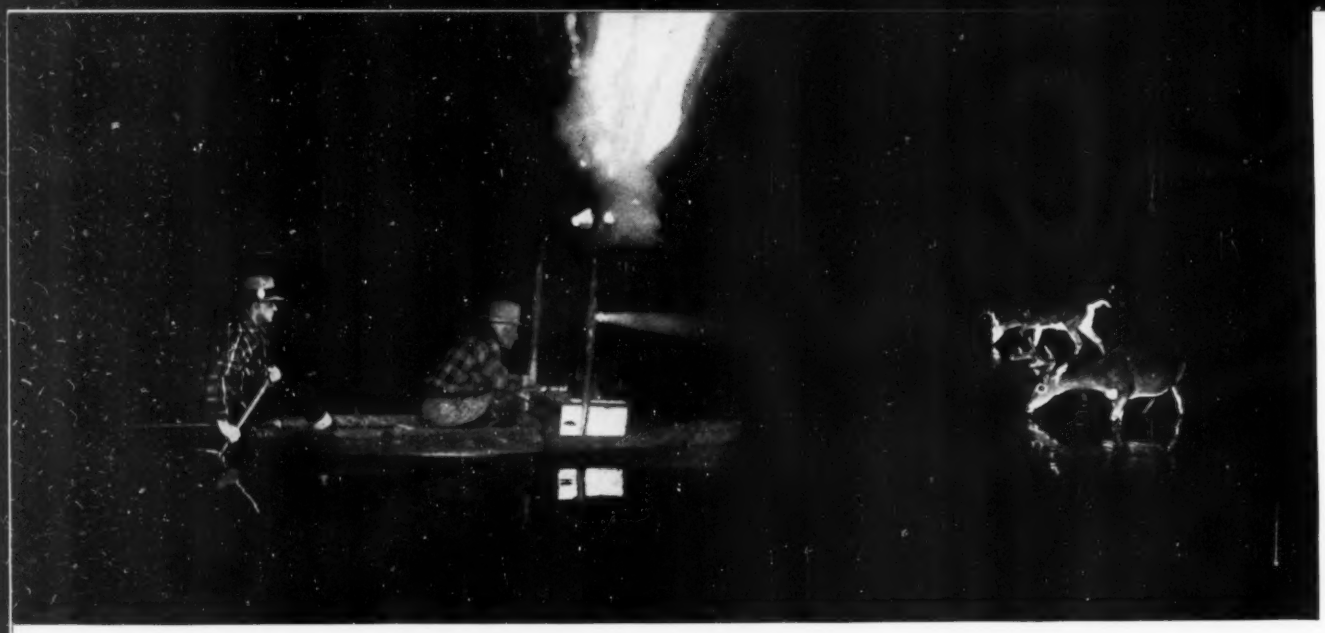
The cave proved to be a pit which extended straight down into the bowels of the earth. On its edge they found an ancient log windlass or device for lowering people or materials into the depths of the hole. The slippery wet sides were fanned by frigid air which came from nature's bellows far beneath. The slender line, which was attached to the windlass, chafed on the sharp, wet edges of the steep declivity. The entire group entered and huddled on the broad ledge below. After resting, they descended another seventy feet.

On the second ledge the remains of a rudely constructed ladder were found. Dr. Hafen, after carefully examining this find, asserted it was at least two hundred years old.

Only Dr. Hafen and Blaurock continued the perilous descent. They were lowered 110 feet, where they found themselves on the floor of a large, roomy cave, from which passages led in all directions. Other pits yawned invitingly to more extensive exploration. However, the rope's supply was fast dwindling, and the two intrepid men decided to give up further search. They found a crude, hand-forged hammer, which the historian declared was of seventeenth century vintage.

Later the explorers pieced together a record of the forgotten cavern that had its inception long before the turn of the last century. The Spanish Conquistadores were forever seeking imaginary cities whose buildings were constructed of the finest gold. They (*Continuing on page* 395)

The remains of the log and stone fort, one thousand feet below the entrance of "Caverna del Oro" or the Spanish Cave. When the German Colony settled in the Wet Mountain Valley in 1869, there were no trees in the vicinity.



FLASHES IN THE NIGHT

By
HOBART V. ROBERTS

EVERY year, around the first of January, I look up a copy of Dr. Jayne's almanac. With this as a guide I lay my plans for a season of flashlight hunting.

Not that the almanac actually contributes to the art of photographing wild creatures at night, but it does predict the nights in June, July and August when the black velvet of darkness will not be disturbed by shafts of moonlight. And moonless nights are necessary if the hunter is to successfully stalk the night rovers with flashlight and camera. Otherwise, deer at the water's edge, birds on their nests, and other creatures at night work or play will discover the hunter's approach and quickly vanish.

They will do this on moonlit nights despite the fact that a spotlight is used, not to draw the animal toward the hunter as many believe, but to cover up the approach of the photographer and his camera. This spotlight, which the animals in all probability believe to be a large star, likewise allows the photographer to keep his subject under observation until the pose and distance are right for the photograph.

So, in mid-summer, with the dark nights revealed to me by the almanac, I am off on a hobby that began a good many years ago when it was lawful to shoot deer from behind a jack light on a boat when they would come to the water at night to feed, drink and frolic.

It was the custom in those days for the hunter to sit in the bow of the boat with a shotgun ready for action. When the paddler had put him to within six rods of the game the hunter would take aim by the aid of the reflected light from the old lantern jack, or perhaps a candle with a tin can reflector, the rays of which were shining on the intended victim. It was in those days that the thought came to me—why not use camera and flash powder instead of a gun and perpetuate on plate or film scenes such as it had been my good fortune to behold under the jack light rays?

I made a few attempts to see what a deer would look like on a film about 1905, but they were only attempts. Some weird looking stumps, lily pads and water reflections showed up, to be sure, but I couldn't detect anything that resembled a deer. I immediately came to the conclusion that I was not getting close enough to my subject. While buck shot would carry eight rods or more, the light of my flash wouldn't register sufficiently at that distance for a picture. So on my next attempt in 1906, I set my camera to "take" at

a distance of from twenty-five to thirty-five feet—and it worked.

The night's adventure that broke the jinx is well worth reciting. With a companion, Antone Louer, I was camped on South Lake, in the Adirondacks, an ideal spot for flashlight hunting. Below us was a beaver meadow, and we set out for it just before dark. My impression is that we had an electric jack or carbide lamp on the bow of our boat, a roll film kodak on a tripod just ahead of the bow seat, and a flash pan on a support a little to the right above and back of the kodak. While this set-up didn't have the high speed advantage of today for still pictures, it answered our purpose well enough.

AT LITTLE WOODHULL

When we reached the narrows separating the lake from the beaver meadow, darkness had overtaken us. It was one of those July nights ideal for flashlight work. Too, it was late enough in the season for the new horns of deer to have branched out.

At the first sound of deer splashing in the water, we thrilled with excitement. Immediately I took the paddle and Antone, putting his oars quietly aside, made his way to the front seat to be ready to pull the string igniting the flash powder when I gave the signal. The camera was open. With ears alert and eyes following the playing rays of the jack light, we endeavored to pick out the owner of those splashing feet, the sound of which was our compass. And the compass was working! Just as we reached a bend two shadowy forms approached and headed right across our bow. The jack light turned their red coats into white; and their eyes were like red coals of fire. We closed in rapidly.

A big buck was following a doe, and they were feeling their way so as not to mire in the muck. They were directly in front of us and in my enthusiasm I paddled too close—in to within fifteen feet of them. Quickly I worked back to the twenty-five foot focus, just as the buck for the first time turned his head toward us to wonder at the shining "star." But not for long, for at my signal the woods reverberated with the noise of flashing powder; and the deer, blinded by the flash, circled too close to us for comfort. Not until they reached the edge of the woods did they give vent to their surprise and fright by a series of snorts. Then dead silence fell over the night, leaving us with what we hoped was our first successful photograph.

Off again, we found a little cove where we reloaded the camera and waited. No doubt every deer in the meadow thought that particular "bang" of the flashlight was for him. With time on our hands we studied the beaver meadow and found it somewhat circular in shape, sheltered by mountains and containing three or four bays where the water was six inches deep. Zigzagging through the center and veering to the right toward an inlet was a little creek, about a foot or two deep, the banks of which were nearly dry.

While studying this creek we suddenly saw a swinging pair of red eyes and knew that the deer were returning to their playground. Immediately we made ready to meet them. I shoved the boat silently up the creek, hugging the left bank. In short order a beautiful buck came within striking distance—just as the boat scraped the bottom of the

creek. Up came his head, but we were prepared for him. The flash was set off and we had "In the Stillness of the Night," a photograph which was to reward me well in prizes. Incidentally, it was one of my two subjects exhibited at the World's Fair under the auspices of the Chicago Camera Club.

With the hope that we had turned in a good night's work, we returned to camp. And night though it was, the film went right into a developing tank, for we could not wait until morning to see the results. The success of our second picture has already been told. But what about the first flash? It was a success also. But more than that it was, to me at least, typical of the old jacking days when the gun was in play—memories never to be forgotten yet impossible to share. Here was the scene just as we had witnessed it—a striking buck and his lady out on their nightly forage. Here was something more than a memory, something very real.

The beauty of deer is not all that we see before the jack light. One night a tormented hedgehog walked a log to the water's edge, dipping first one paw and then the other in the water, bringing them over his eyes and nose for relief.

Often the hooting of an owl breaks or adds to the solitude, and it is not unusual to hear the barking of a fox. But more often we see a great blue heron, rigid as a sentinel, ready to seize an unwary frog or fish. A beaver or muskrat splash often breaks the silence, and now and then mink and coons run the shore.

One night, we saw a falling star, but before it struck it started up again. We had been fooled by a firefly. Things often take on grotesque shapes and too often we mistake a stump for a deer, or vice versa. But when one sees two shining red eyes, ten to one it's a deer—if only one, it may be phosphorus on a log or stump.

Time goes on and William Nesbit and George Shiras, III, along with others, devised methods to trip the camera shutter at high speed. So being anxious to get pictures of deer in action, I purchased one of Mr. Nesbit's outfits and with a companion and two guides made a trip to Little Woodhull Lake—a favorite haunt for deer and where the shore line provides a better foundation for action pictures.

Our open camp was close to the water and there was hardly a time during the day but that we could see from one to seven deer feeding along the shore. When the day was warm and muggy their tails were busy as a pendulum on a clock, switching back and forth in self defense against the deer and moose flies which torment them. When the flies become unbearable, they make a grand rush for the water where they swim and feed among the lily pads.

We indulged in a few daylight pictures but devoted most of the time to waiting for the sun to set. Finally the shadows of night closed in and the boat was made ready. We were eager and tense. Silently the paddle dipped into the water and—but wait, suppose you come along as our guest.

Careful, please, for we are heavily loaded. There, that's it. Now take that seat in the forward part of the boat, on the little suit case. Oh, it's all right, it merely contains extra charges of flash powder. Here, I'll spread this old coat for your comfort. Ready?

Now take these, one in each hand. They are push buttons and you must not be inquisitive to see how they work or I will have to reload. The shutters are set and slides have been drawn from the plateholders so all you have to do is to sit tight. If you want to speak, do so in a low tone. Easy now, the boat is in motion. Unaware of it, aren't you! Well! that's the way we travel, gliding along without even a drip from the paddle.

Now I am about to follow the left shore, so if you will reach forward and turn the rheostat—not too far—we will have the jack light rays glistening on the water ahead and whatever may be in line. There! That's just right! Now I hope you haven't mixed your buttons for we want the right one for a still and the other for a jump. There will be no time to tell you when to fire the second flash, so let it go about a full second after the first.

We are making rapid progress now. See those lily pads

GREAT BLUE HERON

This fine fellow was attracted to take his own picture by a small live fish attached to the end of a fine brass wire. With a moisture-proof camera in position, the wire had been attached to an electric flash lamp. Wires from a three cell battery completed the set-up. A mink was expected, but the blue heron beat him to it.

COON TAKING HIS OWN PICTURE

Two cameras were set up near a tree where a beaver had been working, and wires arranged so that a push from one of the busy little animals would set off the flash. The wire was baited with tuna fish just in the event a raccoon came along, —and one did!

glide by? I am allowing the rays to hit the shore line now and then so that if there are deer down at the edge, watchful and listening, we will not be caught unawares. I don't want them to spot us and snort before we reach the inlet, our objective. Now look, as the light strikes here and there, doesn't it give you the impression of the woods coming up to us rather than our boat making the approach? It often appears that way.

If you are not an alibi passenger, you are mystified and tense by now. Even so, you are about to be startled, for that little animal swimming across our bow is a muskrat, and just the moment he reaches the edge of our jack rays he will surely dive. Ah! You did give a lurch! Well, so did I!

The noise on the shore is just a hedgehog gnawing—and now we must talk in whispers as we may see a deer at any moment. There's one ahead now on that point! Hear the snapping of twigs! You do. And a splash? Then another is coming from the inlet ahead. Since that's the best place to take an action picture, I am going to circle a little and try to get past the deer on our left. Shu-shoo! Not so clever, was I? And that snort warned the deer ahead. See how all the noise has stopped? Whatever was there has sneaked into the edge of the forest just to give things the once over.

We are close enough to the inlet bay to see what's going on now, and that little star on our bow won't hold a deer back. There! See his eyes just between those trees? Here he comes, making no effort to be quiet or cautious.

We are only fifty feet away, so not even a whisper. Can you see? There, and it isn't a buck. No sir, it's a doe, as sure as you're born. But that's all right. We'll get her. Look, she spies something in the water! It's only a frog, perhaps, but her hair bristles. Watch her neck stretch and her ears go forward while she investigates. And see her jump? Clownish, isn't it? Well, I hope she keeps it up until we get closer. There, the light is on her, and she is turning toward the woods. That's bad. We don't want a tail end picture nor a jump with the head away from us. Let's watch and see what happens. She's still mystified, but no, she's coming around sideways, see?

You have withheld your fire well. Possibly you have in mind Bunker Hill and are waiting to see the whites of her eyes. But you won't this night, my friend, for it's so dark. They show red. Well, I guess that's about right, so let's go. Fire! You can't see anything? Well, neither can I, nor the deer. Hear her crashing blindly through the forest!

You can now see clouds of smoke circling upwards and in a few seconds you will be able to see the stars again. There they are! Now it's all over. Did you enjoy it?

Back in camp and the business of developing the plates. The still was just an ordinary picture of a deer feeding, but that jump—well, had you not been with me it might be difficult to convince you that it was a jump at all. The doe must have been so startled by the first flash that she nearly overleaped herself, for the second flash, catching her with her heels high in the air like a bucking broncho, made one think of Maud in the funnies. We titled it "The Acrobat."

An another night, Brayton Clark, one of my companions, was such an excellent paddler that I shifted my usual seat to the bow where I could be master of the buttons. The result of our efforts this time was "A Leap in the Dark," which appeared on the cover of AMERICAN FORESTS for November, 1932. This was also the second of my pictures to be shown at the Century of Progress Fair.

Undoubtedly there are readers interested in the two methods I have used. In the old days, the camera would have to be open all the time, but one had the advantage of being able to stop down to 11 or 16, as the lense absorbed the whole benefit of the powder, the light of which was in the air about one-twenty-fifth to one-fifth of a second, according to the grade. Then, too, stopping down gave greater depth of focus and definition, which is of importance in enlarging the picture, one of the most interesting parts of photography.

Of course, if the film or plate were exposed to light shining on a clump of bushes or a bunch of grass it would fog if left too long, say about an hour. And when the day has been warm and the night cool, fog will drift and dampen the powder. In fact, fog is our great enemy in "jacking." The lenses become covered with dew, and even though this is wiped off, light will not (*Continuing on page* 396)

PINCHOT ASSAILS ATTEMPT TO TRANSFER FOREST SERVICE

First Chief Forester Sees Danger in Attempt to Change Name of the Department of the Interior to Department of Conservation and Public Works

IN an open letter to the press of the nation, Gifford Pinchot, former governor of Pennsylvania, and the first chief forester of the United States, on July 9 assailed the attempt which he believes is being made through the Lewis-Cochran Bill (S. 2665 and H. R. 7712) to transfer the Forest Service and the National Forests from the Department of Agriculture to the Department of the Interior. The bill, if passed, would change the name of the Department of the Interior to the Department of Conservation and Public Works.

"The transfer of the National Forests and the Forest Service is not mentioned in the bill, but is planned for later on," Mr. Pinchot said, in his appeal to "let the National Forests stay where they are!"

Conservation is too broad a subject to be confined to any one department, the first chief forester wrote. "Nearly all of them deal with it in one form or another. A Department of Conservation would be almost as illogical as a Department of Typewriting or a Department of Wastebaskets, which everybody has to use.

"The conservation policy itself, and about every important conservation movement for the last thirty years, originated in the Department of Agriculture. It has shown practical horse sense in dealing with natural resources intelligently, uprightly, and without fraud or loss."

In contrast, said Mr. Pinchot, the record of the Interior Department is "far and away the worst in Washington. Every natural resource, without exception, that has been held for disposal by the Interior Department has been wasted and squandered at one time or another."

Mr. Pinchot's letter, in full, follows:

"I appeal to you because the National Forests are again in serious danger.

"Another attempt is under way to get the National Forests and the forest work of the Government transferred from the Agricultural Department, where the forests are safe and the work well done, back to the Department of the Interior, from which they were taken because of wretched management.

"The present attempt is made under cover of an effort (Senate Bill 2665) to change the name of the Interior Department to the Department of Conservation and Public Works. The transfer of the National Forests and the Forest Service is not mentioned in the bill, but is planned for later on.

"Conservation is too broad a subject to be confined to any one department. Nearly all of them deal with it in one form or another. A Department of Conservation would be almost as illogical as a Department of Typewriting or a Department of Wastebaskets, which everybody has to use.

"The conservation policy itself, and about every important conservation movement for the last thirty years, originated in the Department of Agriculture. It has shown practical horse sense in dealing with natural resources intelligently, uprightly, and without fraud or loss.

"In contrast, the record of the Interior Department is far and away the worst in Washington. Every natural resource, without exception, that has been held for disposal by the Interior Department—public lands, Indian lands, coal, oil, water power, and timber—has been wasted and squandered at one time or another. It is one long story of fraud in public lands, theft in Indian lands, and throwing the people's property away.

"Most of the fights for conservation have been made to save natural resources belonging to the people which the Interior Department was throwing away. The National Forests must not go the same road.

"Secretary of the Interior Ickes is sincere and honest, but he cannot live forever. Secretary Garfield was honest, but Secretary Ballinger, his successor, tried to give away the people's water powers and the coal lands in Alaska. The resulting scandal cost Taft his re-election. And everybody remembers Tea Pot Dome, when Secretary Fall handed the Navy's oil lands over to the despoilers. Fall tried hard to get his hands on the National Forests.

"Ickes is my friend. Wallace is my friend. But the National Forests could not be better handled in the Interior Department than in the Department of Agriculture, where they have been safe for thirty years. What is the use of rocking the boat?

"The Forest Service is completely free from politics where it is. Ickes himself is straight, but the whole history of the Interior Department is reeking with politics. The tradition of the Interior Department is to put private interests first. The tradition of the Agricultural Department is to put public interests first.

"Wood is a crop. Forestry is tree farming. It belongs in the Department of Agriculture with all other farming and production from the soil.

"Undoubtedly if Secretary Ickes got the National Forests he would do his level best. But he has more work now than any other Cabinet officer in Washington. The National Forests are bigger than all the Atlantic States from Maine to Virginia, inclusive. Why put this additional load on a man who has too much to do already? Let the National Forests stay where they are."

Shortly before Mr. Pinchot issued his open letter, Secretary of Agriculture Henry A. Wallace, appearing before the House Committee on Expenditures in the Executive Departments, denied the statement of Secretary Ickes to the Committee, in hearings on the Lewis-Cochran Bill, that the Department of Agriculture desired to have transferred to it the Reclamation Service, the National Park Service, the General Land Office, and the Indian Service of the Department of the Interior. "To the best of my knowledge," Secretary Wallace said, "the Department of Agriculture has never made any effort to obtain these agencies."

The Department, he said, has no wish to acquire bureaus or agencies which have nothing to do with the functions of agriculture and the interests of farmers. "Many agencies in various government departments involve conservation directly or indirectly. Those which have to do with agriculture, growing plants and living animals, can best advance the cause of a sound and dynamic conservation program by being assured of continuing in the Department of Agriculture."

"The Secretary of the Interior (*Continuing on page* 400)

"CALLING ALL RANGERS!"

Forest Service Weaves A Network of 700 Stations as Radio is Developed for Protection of National Forests of West

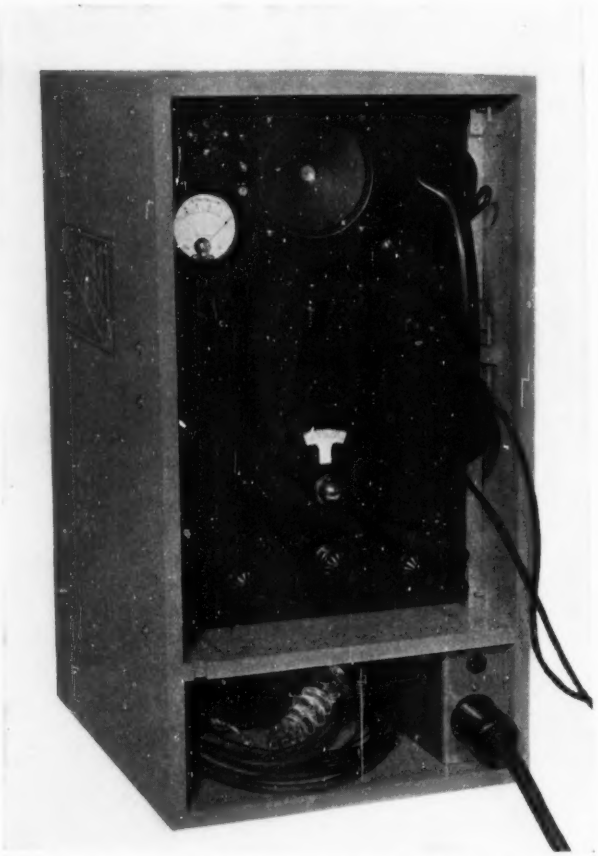
By A. G. SIMSON and F. V. HORTON

An SP radiophone in action.

SOMETIME this summer, if you possess a short wave radio receiving set, spin the dial around to about 3,000 kilocycles and perhaps you will hear a bit of real drama from the far-flung outposts of the National Forests. It may be a forest fire, or a search for someone lost, or the rescue of an injured person. It may be most anything, for you can never tell what will be coming over the air from any of the 700 or more Forest Service radio stations now operating on the National Forests as a modern supplement to the existing 40,000 miles of telephone lines. This radio network, if it can be so called, has not replaced the telephone, nor is it intended that it should.

There are certain communication needs, however, that cannot be satisfied by the telephone. For example, it is not ordinarily possible to maintain telephone communication with more or less mobile units such as fire scouts, patrolmen, small fire suppression crews, and trail construction crews. Hence the need for some additional means of communication has long been apparent. As early as 1913, radio—wireless as it was then called—was suggested. Also, extensive attempts were made to use the heliograph, but with indifferent success. Later, sporadic trials were

In rugged, wild country such as is found in the Olympic National Forest, in Washington, the forest radio is invaluable, particularly in times of fire and other forest emergencies.



Type T ultra high frequency radiophone, designed for duplex communication between fire lookouts. It transmits and receives voice only, and weighs from thirty to one hundred pounds with battery.

made of radio in Montana, New Mexico, Oregon, and elsewhere. This was at a time when radio was far from its present state of development and the experiments were abandoned for lack of adequate equipment.

In 1927, D. L. Beatty, a forest officer whose hobby was radio, demonstrated a small radio telegraph transmitter-receiver to a group of Forest Service officials. Results were so encouraging that Mr. Beatty was urged to devote his entire time to the radio experiment, at least until it was definitely determined whether or not radio equipment could be used advantageously in forest protection work.

However, Mr. Beatty received little encouragement from the radio profession, for engineers, both government and commercial, were generally of the opinion that truly portable radio could not possibly work effectively in heavily forested mountain regions. As one authority put it: "So far as working even a mile with anything you could put on a single pack animal—I just can't see it." Despite adverse opinions, it was felt that radio in the forests was at least worth a try. No one seemed to have any real data and there was always the possibility that it might work.

Therefore it was decided to employ commercial portable radio transmitter-receiving equipment for use in finding out something about the absorbing effect of green timber on radio signals, and to discover to what extent radio "shadows" thrown by the hills and mountains would interfere with or disrupt communication. But to the surprise as well as consternation of the sponsors of the project, suitable equipment could not be found on the market. Finally a contract was entered into with a well-known manufacturer of radio equipment to build two portable outfits. When the sets were received, it was discovered that the manufacturer's idea of portability and the Forest Service's idea were not the same. They were portable so far as a truck was concerned, but one complete outfit could not be packed on a single pack animal.

The sets, according to the forest officer who tried them, were bulky and heavy, but "looked fairly good from the outside." The arrangement of parts was poor, "the wiring a mess, and the first audio stage of both receivers refused to work." The latter was not difficult to correct, but it proved impossible to make the receivers perform efficiently.

Eventually the sets were in working order and considerable time was spent making transmission tests on various western National Forests. Signal measurements were made on radio transmitters set up in brush areas, and under dense mature forest canopies, as well as in deep canyons and on high mountains. Different frequencies were tried both for day and night communication, and varying amounts of power were used.

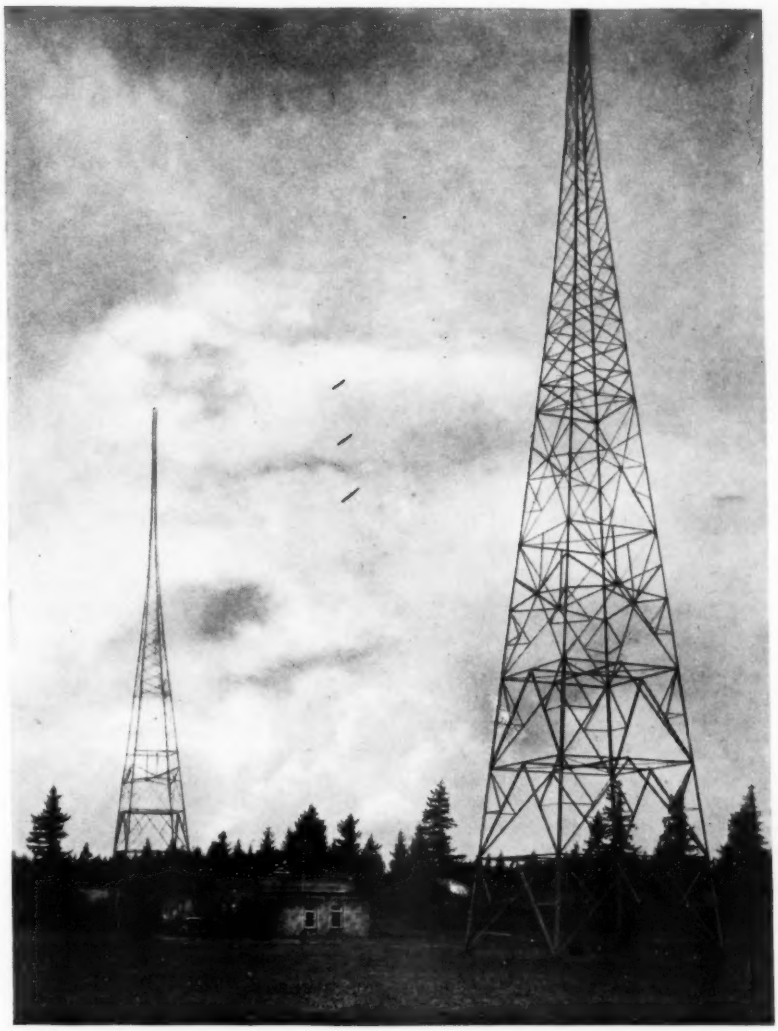
The project soon reached a point where it was clear that concrete results could only be secured by placing foresters, who also had technical radio knowledge, in charge of the work. The project was not one of research, but one of adapting existing equipment to the very specialized and exacting requirements of forest protection. Obviously, the men who by years of training and experience had detailed knowledge of the Forest Service organization, and the many different conditions of topography and fire hazards, were best equipped to determine the kind of tool needed. Cost was of course a factor. In fact, the project was set up as an experiment to determine if radio equipment could be made light enough, strong enough, cheap enough, and reliable enough over given distances on the forests, to meet the specific needs of the

Type PF radiophone, which transmits and receives both voice and code, is in wider use than any set developed by the Forest Service. Weighing fifteen pounds, with a working range of ten miles, and of extreme mechanical ruggedness, it is used primarily by smokechasers and rangers.

Forest Service organization. So in January, 1930, work on the model of a Forest Service radio set was begun. Nine duplicates of this model were built and used throughout 1930 and 1931 in field tests, principally to determine best construction practices and the most desirable form the sets should take.

The 1930 radio set weighed seventy-nine pounds and was put up in four packages. It was a good set electrically and mechanically, and the transmitting range was ample, but it had several shortcomings for forest communication. It transmitted code only; the transmitter was not crystal controlled and had a tendency to drift off the assigned frequency; the set was too heavy and too bulky; the antenna was difficult to install; and it took one man about forty-five minutes to set up the outfit. Although the sets were used by men employed as lookouts, smokechasers, trail builders, and unskilled laborers, they had but little difficulty in transmitting messages in code. The men were shown how to make dots and dashes with the key, given a code chart, and told to write out their messages in dots and dashes before transmitting them. The man at the receiving end wrote down the dots and dashes just as received, then by referring to his code chart, translated them into written words. The system was slow, but it worked.

After two seasons with nine of these more or less portable code radio sets, it was felt enough data had been accumulated to warrant going ahead with the design of radio equipment for general forest use. Accordingly, two types of sets were constructed, namely, the type SP radiophone and the type P radio.



Where the Forest Service has developed the radio for the protection of the western National Forests — the Radio Laboratory, at Portland, Oregon.

The type SP radiophone, in two packages, weighed complete about fifty pounds, and transmitted both voice and code. The type P radio weighed, complete, ten to twelve pounds, received both voice and code, but transmitted code only. About 150 of these sets were put into service for general field tests.

Results of these tests, coupled with an analysis of communication needs, indicated that additional types of radiophones were required. So the original SP and P sets were improved and four additional types of radiophones developed by the Forest Service to meet various specific forest protection communication needs. A brief description of each follows.

Type P radio unit transmits code only, but receives both voice and code. It weighs about nine pounds and has a rated working range of twenty miles. This set is primarily designed for smokechaser use in extremely rugged country where the last word in portability is essential. It is packed on the back along with the other necessary fire fighting equipment, and is of extremely rugged construction.

Type SP radiophone, a voice or code transmitter-receiver, has a rated working range of about fifteen miles on voice and twenty-five miles on code. The weight depends on the size of the dry batteries used and usually is from seventy-five to one hundred pounds. These sets are used at points where there is considerable radio traffic, where weight is not a factor and where it is desirable to take advantage of the lower operating cost of heavy duty batteries, such as at key lookouts, C.C.C. camps, and ranger stations.

Type PF radiophone, transmits and receives both voice and code, and weighs about fifteen pounds. The rated working range is ten miles on voice and twenty miles when code is used. More PF sets are used in the Forest Service than any other type. The set was designed primarily for use by smokechasers where reasonably compact and portable voice communication is required. It is often carried by road and trail crews, rangers and other traveling forest officers, as well as on fire trucks. Extreme mechanical ruggedness is a characteristic of this set. As the C.C.C. men say, it can take it. Laboratory tests for mechanical durability of this set would give a broadcast radio designer the jitters. One of the tests is to drop it to the ground from a height of twelve feet.

Type M radiophone, a voice and code transmitter only, weighs about 100 pounds. (*Continuing on page* 398)

UNHURRIED

By GRIF ALEXANDER

"With ebon gods poised on their bows."

IN Maryland the rhythmic tides have cut intricate patterns
In the fertile plain
And filled the jigsaw scheme with changing waters.
The placid creeks are mirrors
That reflect the tree-clad shores and sunny cloud-flecked sky;
And gulls and crows a-wing; and darting kingfishers;
And stately cranes that strut in shallow flats,
Admiring their long legs and snowy plumes;
And skiffs with ebon gods poised on their bows,
Their tridents swapped for crab-nets.
And near the mouth of lesser creeks quite often there's a bridge,
A rustic bridge on which a man may pause and looking down
See playful trout like youngsters out of school;
Or crabs on earnest business bent and never, never loitering;
Or minnows in the grasses dining on mosquito babies;
Or jellyfish like brides with endless trains
That sting the flesh they touch.
Beyond the bridge
The creek disdains the straight and narrow path,
But parallels the road awhile, stretching itself,
Before it joins the river.
And where the waters merge, a spreading delta forms:
Stretches of yellow sand,
And here the maniose, or long-necked clam, sucks sustenance
—True interest on alluvial deposits.
The larger creeks are matrices of giant hands,
Full half a mile of water at the wrist,
A mile or more across the palm,
And long, long fingers stretching up to bogs and fens.
Between the fingers flourish farms,
Each farmer lord of his peninsula.
He gambles with the weather, and the market,
And seldom takes a pot.
With back-bent toil he grows and tends the food he eats—
Eggs, milk and meat, and field and garden truck,
And tongs the oysters fat from front-yard garden-beds.
Tobacco is his money crop—his favored child—
And sometimes ailing.
He sows the seed in huckleberry soil where white oaks grow.
When they've made a little growth he takes the tender plants
And sets them out where sassafras once flourished,
Or cedars red or locusts tough, or all the three together.
September's harvest.
Close to the ground the lusty plants are cut
And then impaled on frow-rived chestnut sticks
And on an ox-cart taken to the barn.
The ox-cart's silent safety tread
Provides such non-skid safety traction
That, all good drivers say,
Traveling's safe on roughest roads.
The car that's never known a blowout
Nor slain poor folk that wander in its path!
Its automatic chassis lubrication,
Its freedom of the knees, its perfect valves,
Are age-old gifts modernity but apes;
While ease of steering—simply "Gee" and "Haw"—
Enthralls, enchants the gasoline addict.
The ox-cart driver never wears a tense and worried look.
He knows he'll be on time
Whatever time it is when he arrives.
The ox-cart leaves its load
And sun and wind take up the task where Mother Earth left off.
When summer comes, the leaves, now brown and dry,
Are packed in hogsheads large.
Perhaps they'll bring five cents a pound—or fifty.
With prices high the taxes will be paid.
With prices low some scrimping must be done.
But high or low, the farmer and the farm,
The weather and the market, shake the dice.

In days gone by no manor house was built
But faced the river, creek, or bay.
Each had its wharf where ships could take on freight,
And, subject to the King's Collectors,

"The ox-cart driver never wears a tense or worried look."

Discharge its cargo fetched across the seas.
To make a social call one went by boat
And sailed a mile or so, and stayed a week.
To go to church or court one rode a horse
for miles,
Through woods, before the pike was reached.
Now cars are parked where horses once
were hitched,
The side roads widened, and the forests
thinned,
And here and there are houses newly built;
And on the rolling road made smooth and
hard by casks
Propelled by mighty men now dead,
A shack in which a motor car is housed.

Times change, ah, yes,
But take it by and large there's little change
in men.
They have the same pride in themselves,
Their homes, their families;
Know the same joys in social intercourse.
They help each other's churches and get their money's worth
In chicken, oysters, slaw, potato salad, ham.
They know the self-same sports their sires before them knew.
They hunt and fish and race. They have the self-same virtues.
They pay their debts; they keep their word;
Their friends can bank on them.
In tournaments they still joust with the lance.
And when in pageantry you see them
Decked in costumes of three hundred years agone,
They have no shy self-conscious air
Of actors strutting in unfamiliar garb; they're right at home,
As much at ease as tho' they'd never known aught else
But doublet, hose, plumed hats, and dangling swords.
Their troubles are the same.
Once, long ago, production much too great
Brought prices all too low for good tobacco;
Whereat Governor Berkeley of Virginia
Besought the sister colonies,
Maryland, and Albemarle in Carolina,
To cut the acreage of the "unhappie weede"
And so increase its value; a plan that Cecil Calvert balked
Because of "inconvenience to poorer planters"
And some impairment to the customs
Of "His Most Gracious Majestie."

"Where, then, is need of haste in making change?"

'Tis but an instance out of many.
There's not an economic ill extant
But had its counterpart in days long past;
And not a remedy suggested that's not been long since tried.
Where, then, is need of haste in making change?

There's little wisdom in the world
Save wisdom long drawn out of past experience,
And that is wisdom oft forgotten.
But channels made by yesterday's forgotten rains
May still direct the torrents of today.

There is, in men who own and work the land,
A certain plodding patience; capacity for persevering toil;
A love of independence; a cheerful confidence
That soon or late all wrong will be made right.
What though throughout the world there is unrest?
That strange new words stir up the minds of men?
The farmer knows that good will come at last.
It always has; and good things must repeat.
He follows in the footsteps of his sires.
Although he lacks the acreage they owned
He still possesses all their simple faith.
They loved the land they tilled and so does he.
He shares their joy in swaying fields of wheat;
In lusty cornstalks singing in the
rain;
In chickens, turkeys, cattle, horses,
hogs;
Wind in the trees and waves upon
the shore;
Clouds in the sky;
And all the myriad scents of clover
sweet
And honeysuckle wild, and locust
honey gathered by the bees;
Wrens at his heels in furrows as
he plows;
Catbirds that pertly watch him as
he passes;
Mocking birds and robins, redbird
and quail;
Brown earth, blue sky, and all
that's in between.
Why, bless us all, he knows that
life is sweet,
That God is good,
The world at heart still sane.

"Clouds in the sky; and all the myriad scents of clover sweet——"

Starvation Stalks Isle Royale Moose

Can Michigan Save Its Famous Herd as Hunger Continues to Take its Grim Toll?

By BEN EAST

ON THE morning of April 26, Patrol No. 1, flagship of the Michigan Conservation Department's commercial fisheries inspection "navy," nosed through the narrow, rock-studded gateway that is the entrance to Chippewa Harbor, on the south shore of Isle Royale.

The bluff-bowed boat presented a strange appearance as she eased in under the frowning, spruce-crowned cliffs that guard the fjord-like harbor, every available inch of her after-deck piled high with a bulky load of heavy crates.

She was on her way to bring back to the Michigan mainland a band of eleven captive moose, live-trapped during the winter and held in corrals by Paul Hickie and Ellsworth St. Germain, as part of Michigan's experiment in big game management on the great Lake Superior island, where hunger took a startling toll of the moose herd a year ago. Aboard the patrol boat was a party of fifteen, made up of Michigan game officials, photographers and newspapermen, including the writer. It was the party's job to crate moose and load them aboard the boat for shipment. Although it was near the end of April, winter was retreating reluctantly from the Isle Royale ridges. Snow lay at the foot of the cliffs and the timbered slopes were still white. The inner harbor was filled with pan ice, and the herring gulls that wheeled against the cliffs and set the harbor ringing with their unmusical cries were the only signs of spring.

Michigan Department of Conservation

Evidence of winter food shortage for the moose on Isle Royale. Balsams have been browsed and broken off as high as a moose can reach, as shown above. Ground hemlock has been stripped of virtually every green needle, while aspen, cherry and other deciduous browse have fared no better.

What the party would find in the way of moose conditions on the big wilderness island, no one knew. To what extent Isle Royale had served, during the late winter weeks, as the stage for a wildlife tragedy similar to that which once swept the elk of Jackson Hole or the deer of the Kaibab Plateau, Hickie's terse radio messages had carried no hint.

The short-wave radio station on the island had sent out, late in the winter, reports of the death of the first moose in the vicinity of the headquarters on Chippewa Harbor, had subsequently reported the deaths of more as conditions grew worse, as March snows piled deeper and the limited amount of moose food grew more and more scanty.

The radio had hardly hinted, however, at the disaster that seemed probable—on the basis of what happened in February and March of 1934—when Hickie and St. Germain went into their winter quarters last November and began their work of trapping moose and cutting browse for a limited number outside their corrals. The first two days we were on Isle Royale there was little chance to talk moose conditions with Hickie, to learn what had happened, what percentage of the herd, in his estimation, had survived the winter. The loading of the live captured moose was the first consideration. Preparations for that job got under way within an hour after the patrol boat tied up at Holger Johnson's dock, and there was no letup until six of the animals had passed through the live-trap into the narrow confines of a shipping crate and had been lashed in place late the following afternoon.

At sundown that night Patrol No. 1 cleared the harbor with the first cargo of live moose ever to cross Lake Superior. We had at least a full day, perhaps two days, before she would be back after the others, and those of us who remained on Isle Royale, including Hickie, St. Germain, Harry Ruhl, chief of the game division of the Michigan Conservation Department, and Joe Stephenson, his assistant, settled down to give our attention to the moose that had not lived through the winter.

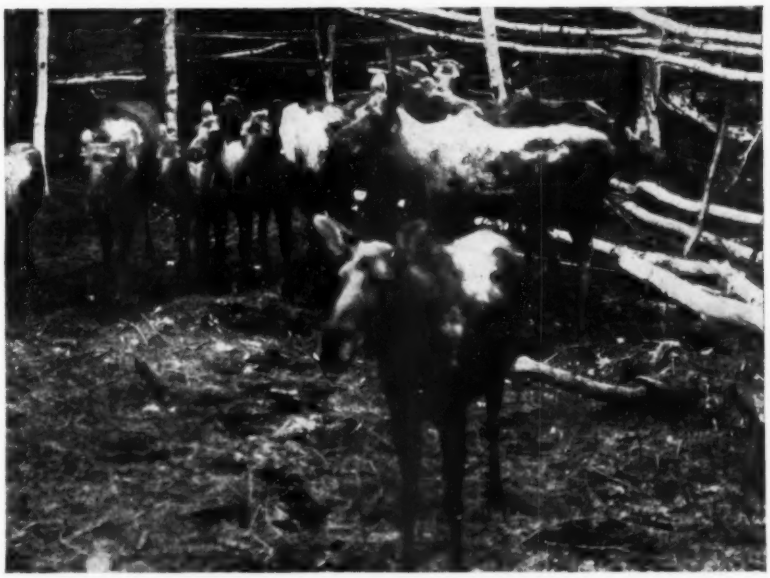
The story Hickie told us that night, in the headquarters where he and St. Germain had spent the long quiet months of the winter, of what had happened to the Isle Royale moose herd between November and the spring breakup

was not encouraging. A total of thirteen dead moose had been found within two miles of Chippewa Harbor. What fraction this represented of the total number that had died, there was no way to tell. Searching for a dead moose in the tangled thickets of Isle Royale at any season is like looking for the proverbial needle in a haystack. In winter, when the carcass of a dead animal may be completely covered with snow the same day it dies, the job becomes even more hopeless. It is not only possible, it is easy, to pass within a hundred feet of the carcass of a moose and not see it.

In addition to this handicap, the job of cutting browse for the moose they trapped engaged the time of the two-man crew to a point where they found scant opportunity to search for dead animals. Hickie made one eighty-mile trip on snowshoes, the length of the island, late in winter. That was the only attempt at a large scale survey, and it was of necessity cursory.

Joe Stephenson put it this way: "If you'll put up a map of Isle Royale that covers the entire wall of this cabin, and draw a pencil line across it from one corner to the opposite corner, the line will just about represent the share of the island's area that two men have been able to cover during the winter, in looking for dead moose." The comparison is a fair one.

All figures as to the actual moose losses must of necessity be estimates. It seemed a fair assumption, however, on the basis of conditions and of previous experience in big game losses, that the thirteen animals found might well represent half of those that had died in the limited area around headquarters, and about five per cent of the total loss for the island. That would mean approximately 250 dead. Not a staggering loss, yet more than heavy enough when the limited area of Isle Royale, 205 square miles, is taken into consideration.



Eleven of the Isle Royale moose herd wintered well. They were live-trapped and held in a corral for shipment to the mainland, Michigan's experiment in relieving the tragic situation on the famous Island.

Hickie was reluctant to guess at numbers. Pinned down, however, and emphasizing it was only a guess, he fixed the loss at between 150 and 250 animals for the winter. It was his belief that about one-third of the September moose population of the island died. The winter was not as severe as that of a year ago, but food conditions were worse, so that the percentage of the herd lost this winter was as great as in 1934, in his belief.

Computed in much the same fashion, the first official guesses on the heavy 1934 toll I had ever heard were made there that night. Forty-two dead moose were found on the island before and after the spring breakup a year ago. That probably meant that not less than 300 and perhaps 500 animals died in the space of a few brief weeks. Ruhl, Stephenson and Hickie confirmed such an estimate as entirely reasonable.

In view of these losses, then, how many animals now remain in the herd that five years ago was the most heavily concentrated in the United States, the largest in the country outside of Yellowstone?

Again no one knows, and again Paul Hickie, who comes nearer to knowing than anyone else, shunned venturing a guess. Finally, in response to direct questions, he said perhaps 400 or 500 animals. He did not believe more than that. This is what is left of a herd estimated by game men to have numbered 1,000, perhaps two or three times that many, in 1930.

Hickie reported that as nearly as he

But outside the corral hunger's grim toll is in evidence. It is estimated that more than 250 moose starved on Isle Royale last winter—about one-third of the September, 1934, moose population.

could tell between fifty and one hundred moose had wintered in the general vicinity of Chippewa Harbor. That was the heaviest concentration on the island, a natural result of the food cutting operations and of the trapped animals that acted to some extent as decoys.

We went out the next morning to see at first hand the grim evidence of winter starvation. We had not far to look. On the shore of the harbor less than fifty yards beyond Hickie's headquarters was the skin and what remained of a calf that had died about the first of February. In a swamp along Mason creek, a short distance inland, Hickie showed us another calf that had slumped down astride a log as it stretched vainly after green balsam browse just above its reach. It died where it fell, too weak to free itself from its clumsy pose astraddle of the log.

On top of a neighboring ridge, in the center of a small cutting where birch and balsam timber had been felled to furnish food for the hungry animals, lay a big cow, sprawled awkwardly, her posture mute evidence that she, too had died where she went down, helpless in the deep snow.

One bull of which Hickie told us died a more spectacular and perhaps a more merciful death. Wandering along the very rim of a fifty-foot cliff just across Chippewa Harbor from the Johnson buildings, he reached out for an overhanging cedar branch. Driven by the sharp goad of hunger he reached too far, lost his footing and plunged down to his death on the rocks below, sliding many yards out onto the snow-covered ice of the harbor, where he was found.

Another bull died near the Johnson house four days after he first appeared and showed signs of hunger-begotten sickness. He was then weak enough that when he lay down he had difficulty in getting to his feet again. Yet on the second day he came down almost to the door of the house and turned furiously on the Johnson dog. Two days later he died in his daytime bed, without a struggle. Another animal, a calf, wandered out onto the ice of the inner harbor, lay down in the snow and died without moving.

Wherever we went we saw the same startling evidence of winter food shortage that had confronted Hickie and myself on the fall survey of moose conditions last September. Balsams were browsed and broken off as high as a moose could reach. Ground hemlock had been stripped of virtually every green needle. Aspen, cherry and other deciduous browse had fared no better. It was difficult to believe that any moose had lasted through the winter on the limited food supplies available. Hickie believes those that did survive subsisted largely on a diet of cedar, a food distinctly not to their liking and taken only under the press of hunger, but present in limited quantities. On his eighty-mile snowshoe trip in late March he found the moose yarded in the cedar swamps and along the shores of bays and lakes where they could find cedar. The supply of balsam was exhausted and the dwindling herd had concentrated in the only areas where the animals could find food of any sort.

In the face of such conditions what is to be the fate of the moose herd that has been one of Michigan's stellar wildlife attractions? Will hunger continue to take its grim, pitiless toll until the herd is all but wiped out, until no more than a scattered handful of animals remains, making its way through the winters as best it can, eking out a precarious existence on the summer's limited growth of browse?

Or can the Michigan Conservation Department intervene, in the interests of both mercy and game conservation? And if such intervention is possible, what method is best, what direction should it take? Two schools of thought prevail among the State's own game men as to what the future holds for the moose herd if man lets nature have its relentless way. Hickie believes the heavy losses among the animals began not more than two years ago, that the herd is still on the down grade, that starvation has not yet run its full course, that the moose population will coast steadily to lower and lower levels, perhaps to end up in total extermination within the next few winters. Stephenson, who has devoted years to the practical study of big game problems, believes heavy losses by starvation may have begun three or four years ago and passed unnoticed in the isolation of the Isle Royale winters.

On this basis he feels that the low level of the herd has now been reached, that enough remnants of food are available on the island to carry permanently a moose herd of about the present size, that the winter losses now roughly equal the calf crop, and that with minor fluctuations things will go along about as they are from now on, with starvation killing off the annual increase each winter. At best, hardly a pleasant picture to contemplate!

As for remedies, one thing at least has been proven. It is entirely feasible to live-trap large numbers of moose on the island in winter and transport them safely to the mainland for release. No difficulty was experienced in trapping, crating, or handling the eleven animals taken by Hickie and St. Germain this winter, and all reached the mainland in good condition. The cost of such trapping operations does not promise to be prohibitively high; and in the eastern half of the Upper Peninsula, Michigan has plenty of good moose country available.

It is too early, as this is written, to predict what will be done next winter. No decision has yet been reached by State game officials. It will not be surprising, however, if next November sees a sizeable (*Continuing on page* 399)

BOOTS AND SADDLE FOR TRAIL RIDERS

With more than a million acres of wilderness ahead of them, riders of the first Expedition of The American Forestry Association's "Trail Riders of the National Forests" left Missoula, Montana, on July 9. Twenty-one riders were in the party, which will explore the wild trails of the Flathead—Sun River Wilderness, in the Flathead and Lewis and Clark National Forests.

From Pittsburgh, Pennsylvania, were J. Theodore Ross and Dr. Arthur B. Thomas; from Chester Springs, Pennsylvania, Arthur E. Hutchinson. From Rochester, New York, were Miss Dora M. Loetzer and Miss Esther A. Horn; from Staten Island, New York, Mrs. Dagmar Johnson and Miss Dorothy Johnson; from Yonkers, New York, Dr. Marta Sandberg, and from Long Island, Miss Margaret Loughran. From Chicago, was Miss Lenore Suder; from St. Louis, Mrs. Newman R. Donnell; from Milwaukee, T. H. Spence. From Cleveland, Ohio, were Mr. and Mrs. O. C. Sabin and E. M. Ruppe; from Elizabeth, New Jersey, Miss Lilian Egleston; from Seattle, Washington, Miss Florence Davis. From Washington, D. C., were Miss Mary Hornaday and Fred E. Hornaday; and from Missoula, Montana, Mr. and Mrs. K. D. Swan.

On July 30, the second expedition of Trail Riders will get under way from Kemmerer, Wyoming, for the Wind River Wilderness. Every place in this party has been taken. Reservations may still be had, however, for the third expedition into the Gila Wilderness of New Mexico, which will leave Silver City on August 21. They should be made immediately, however, as only a limited number are available.

THE MAGIC OF THE DIAMOND HITCH

By CLAUDE M. KREIDER

WESTERN history deals little with the important and difficult science of pack animal transportation, although it is as inseparably linked today with the lives of mountain dwellers throughout the west and as necessary to their welfare as it was in the days of Kit Carson and contemporary pioneers.

Linked with the pack animal is the justly famous Diamond Hitch, a mysterious and magical affair to most persons, which will accomplish almost anything in the hands of a grizzled mountaineer, from lashing a piano to the "hurricane deck" of a mule, to holding snugly all the duffle a "city dude" may require in his hunting camp. And the Diamond can and will accomplish wonders, when properly applied to a pack load, although it is after all a simple arrangement of half hitches and bights in forty-five feet of hemp rope.

Certainly this cunning arrangement has never been improved upon, for that snugly pulled rope every day of the year insures the safe arrival of countless tons of necessities to homes, camps and mines from Sonora to the Arctic Circle.

But the success of the hitch, whether Diamond or other variety, will depend on the packer, his care in the management of the animals throughout the day and especially upon the conduct of each animal. Properly trained mules of stocky build and medium size are far better than horses for this work, and their accomplishments, with huge and heavy burdens on trails perhaps a foot in width and steeper than a house roof, are often of truly miraculous nature. A good mule will pack 200 pounds in the roughest of country day after day, if fed grain, but 150 pounds is usually the limit for long trips on a grass diet when the animals are hobbled out to forage at night. A pack is a "dead riding" load and equals the weight of a man at least fifty pounds heavier in its effect upon the animal.

For short "hauls," three sacks of cement are often carried up very steep trails on construction jobs, and a pack load of 400 pounds for a few hours even up a thirty per cent trail grade is not uncommon. This weight is nearly half that of the average size pack mule and an indication of the amazing strength and sureness in those slender legs and straight back of the western bred animal.

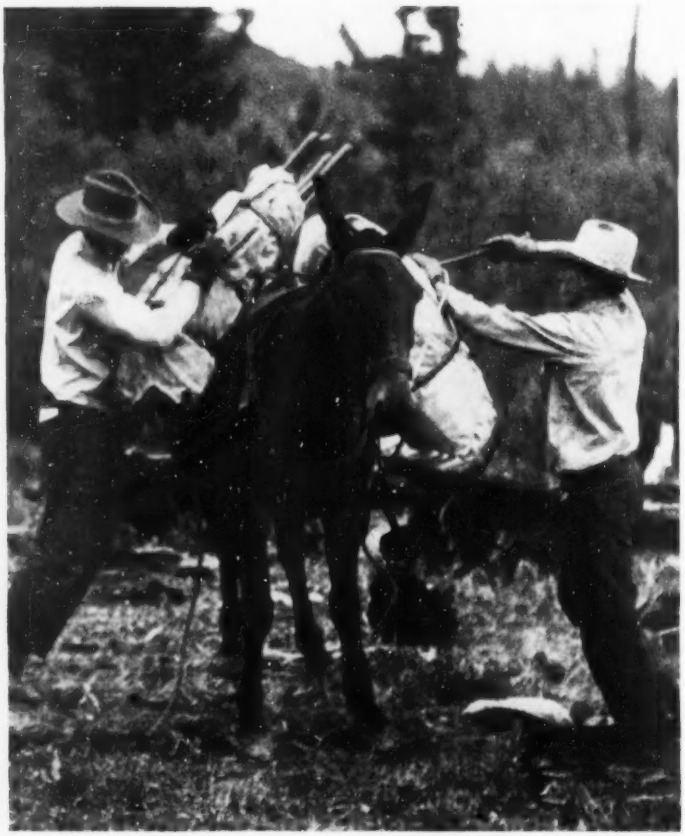
Perhaps the most outstanding performance of all time was that of a large, carefully chosen and conditioned mule in the mountains of the California desert many years ago. He carried a piece of machinery weighing 800 pounds a long distance from the road-end to a mine and survived the ordeal, delivering his indispensable load without accident. For his performance he was pensioned for life by the grateful operators of the property.

Another great pack mule of my acquaintance, old Nig, spent a long and useful life packing necessary and unwieldy burdens far back into remote regions of the Sierras. His greatest burden was an iron flywheel weighing 540 pounds, and this he packed a distance of twenty miles in one day. Men walked beside him to steady the burden when necessary and to set up a tripod and block and tackle to relieve him of the weight at the frequent stops for rest. On another occasion this great mule packed an elaborate kitchen cabinet over a 12,000 foot Sierra pass, climbing more than 6000 feet of elevation and descending a steep and rocky trail of many switchbacks into a great canyon. Thus one remote cabin acquired the latest of kitchen conveniences. Huge porcelain bath tubs, likewise, Nig has safely carried over many miles of torturous trail, always with the same safe, sure tread, regard-

Photograph by Charles H. McDonald

A pack train on the Wasatch National Forest, in Utah.

The final pull in "throwing" the magical Diamond Hitch—cinching the burden safely to the beast.



less of the high-lashed, swaying load and rocky footing.

Another unusual mule owned by the same Sierra pack master was employed with others in fast relay work, taking supplies of every description far into the most inaccessible portion of the range, for the establishment of a field hospital. Several men had been seriously injured in a trail building accident and an airplane carrying medicine and a doctor to them crashed high in Shepard Pass at 12,300 feet elevation. The mule was worked slowly down through the great slabs of granite talus to the wreck and the fuselage, twenty feet long, was lashed to his back. Men guided the projecting tail of this strange burden and Pinto packed it down a 6000 foot descent of rough, almost impassable trail.

These unusual loads are generally carried on an aparejo, which is made up of a saddle

Packing for the trail. Food boxes, bed rolls, sacks of grain, tools—an endless variety—must be put into pack loads, exactly balanced for weight. In the western mountains, even with the finest of pack animals, the chief responsibility lies with the packer, for packs of every conceivable nature must be properly prepared for transportation over bald, granite walls and peaks, offering a minimum foothold. Every little item must be right. A loose rope may spell destruction to the whole string through the turning of a pack, should this disaster occur on a narrow shelf of rock such as often overhangs a thousand-foot drop into space.

Penetrating the wilderness, the pack train moves surely and steadily forward.

and heavy pad combined. It is built of heavy sole leather, with wide skirts to protect the shoulders and flanks of the animal, and with large side pockets which are stuffed with hay or similar padding to lift a single, heavy burden above the back. For conventional pack loads nothing better is known than the "saw buck" type saddle of wood, which is lashed to the animal with double cinches, and is padded by a inch thickness of blankets. The tight cinching of the saddle, as well as the adjusting of the breeching to prevent it from shifting forward in downhill work, is essential to proper packing, even of the smallest load.

The good pack mule draws a well defined line between his work and that of his master. He does not want or need directions while on the trail and prefers to travel unhampered and free. The packer's job is to put the load on properly, and to see that it remains so. The animal studies the trail keenly at every step, and at once refuses a situation that appears dangerous until he has decided the proper course of action. And his decision will be based upon sheer reasoning.

On ordinary rough trails, he overcomes difficulties without pause or change of pace, hopping over cross ledges, swinging clear of projecting rocks and stepping neatly over deep crevices. At a really "bad" spot, he will stop with head thrust low, study out the proper course of action, then unerringly step, jump or sidle past the hazard. Should a large boulder or uprooted tree block the trail he will look carefully for a way around. If none offers he calmly slouches into a restful position and waits for the packer to do something about it.

The pack mule's ability to fathom the depth of soft, boggy spots is uncanny. He will walk boldly into those that his master regards with doubt, and at once refuse another which appears safe but proves after testing to be a trap. Likewise, when traveling in granite talus and after stepping confidently upon a hundred rock slabs that to us appear insecure, he will avoid another that really is unstable. In these instances certainly instinct goes beyond his remarkable reasoning power, for the key to such hazards is entirely hidden—at least from human eyes. He does not like ice, snow or wet, glassy bedrock, but if it cannot be avoided he will cross slippery surfaces balanced as carefully as a tight rope walker; and on steep descents he will gather his feet together and slide.

When serious trouble does occur, the good trail mule never fails to keep his head and think clearly through any emergency. Our little Sally mule was once crowded off the trail by a loose saddle horse just as she was hopping up over a bad cross ledge high in Shepard Pass. For a thousand feet below there stretched a steep mass of jagged granite talus and Sally's plight was hopeless, we thought, as we watched her roll over and over, each time crashing with a sickening thud to the next rock below. But she kept her legs tucked tight and her slender neck stretched always in the clear. At last she wedged in a crevice half way to the bottom. We clambered down sadly to her and to see if the pack was worth salvaging. We cut the lash rope, tried to roll her over; she drew a deep breath and struggled to her feet! Excepting the loss of much skin, she was as good as ever, and next day again carried her pack.

But not always will such miraculous escapes follow these trail accidents. I know of six fine young mules that were descending a very bad trail, each hitched to the one in front and the leader, in turn, led by a silly old pack mare. She was gazing dreamily across the canyon when she came to a sharp switchback turn, stepped off, and dragged the helpless mules to destruction.

In almost every high Sierra (*Continuing on page* 397)

A good mule will pack 200 pounds in the roughest country day after day, on steep trails only a foot in width. His instinct establishes in his mind the width and height of his pack and guides him in avoiding obstructions which might easily throw him from the trail.

Anniversary Meeting in Adirondacks

Sixtieth Anniversary of The American Forestry Association to be Observed in Coordination with Program to Celebrate Fifty Years of Conservation in New York State

THE 1935 annual meeting of The American Forestry Association, which will mark its sixtieth anniversary, will be held at Lake Placid, New York, September 12, 13 and 14, in coordination with New York's state program to celebrate fifty years of conservation in that State. The two meetings will form one of the greatest conservation rallies in many years. President Franklin D. Roosevelt and Secretary of Agriculture Henry A. Wallace have been invited to participate in the anniversary rallies. The President, if he attends, will take part in the official opening of the new White Face Mountain Highway and the great pageant depicting fifty years of conservation in New York State, to be held in the Lake Placid Arena on September 14. The Secretary of Agriculture will be the feature speaker at The American Forestry Association's banquet on the evening of September 12.

Plans for the anniversary meetings call for a series of field trips and sporting events interpolated with talks by eminent men. Opportunity will be given those in attendance to view at first hand some of the accomplishments of New York State since the creation of a forestry commission and the forest preserves fifty years ago—the real beginning of state forestry in the United States—and to hear the nation's conservation leaders discuss future trends and policies. The headquarters of the meeting will be in the Arena, at Lake Placid, where many of the sessions and events will take place.

Exhibits, a meeting of the New York Section of The Society of American Foresters, which will be open to all attending, bait casting contests and a championship baseball game between Civilian Conservation Corps teams will feature the opening day, Thursday, September 12. In the evening will be The American Forestry Association's banquet, at which Secretary Wallace, Dr. John H. Finley, associate editor, *New York Times*, and Lithgow Osborne, commissioner of conservation, New York State, have been invited to speak. Henry Solon Graves, president of the Association, and dean of the Yale Forest School, will serve as toastmaster.

The automobile field trips on Friday, September 13, will include such outstanding examples in conservation as the Clifford R. Pettis Memorial Forest, the Lake Clear Forest Nurseries and Fish Hatchery, and the Fish Creek public camp grounds. At Wilmington Notch, Governor Herbert H. Lehman, of New York, will unveil a tablet to commemorate fifty years of conservation in the State. The State's evening program will be a campfire dinner and an address by J. N. Darling, Chief of the Bureau of Biological Survey.

On Saturday, September 14, the meeting will climax with the opening of the new highway to the summit of White Face Mountain and the pageant in the Arena, at Lake Placid. President Roosevelt has been invited to take part in both events. If the President attends, there will be a great conservation luncheon in the Arena.

Lake Placid lies in the very heart of the Adirondack Mountains, 2,000 feet above sea level. It is easily accessible by a single day's travel by rail or motor from any point in New England, New York, New Jersey, and Pennsylvania. Special summer excursion rates (*Continuing on page* 400)

PROGRAM

THE AMERICAN FORESTRY ASSOCIATION
and the
NEW YORK STATE CONSERVATION DEPARTMENT

Activities Celebrating the Sixtieth Anniversary of the Association and Fifty Years of Conservation in New York State will be Held at

Lake Placid, New York, September 12, 13 and 14, 1935

THURSDAY, SEPTEMBER 12

ASSEMBLY— Beginning at 10 A. M., exhibits of wildlife and of the work of the New York State Conservation Department. Meeting, New York Section of the Society of American Foresters, open to members and guests of The American Forestry Association. Bait casting contests and the Civilian Conservation Corps baseball game for championship of northern New York.

BANQUET— 7 P. M.—The American Forestry Association, in Lake Placid Arena.

TOASTMASTER: Henry Solon Graves, President, The American Forestry Association.

SPEAKERS:
* Henry A. Wallace, Secretary, The Department of Agriculture.
* Dr. John H. Finley, Associate Eitor, The *New York Times*.
Lithgow Osborne, Commissioner of Conservation, New York State.

FRIDAY, SEPTEMBER 13

FIELD TRIP— 8 A. M.—Tour of the Clifford R. Pettis Memorial Forest, 3,000 acres of coniferous trees planted between 1906 and 1909; visit to the Lake Clear Nurseries where 42,000,000 young trees are growing preparatory for transplanting to state and privately owned lands; to the Lake Clear Fish Hatchery; to the Fish Creek public camp grounds used annually by 30,000 campers; and to the historic Axton forest plantations; then through virgin forests to Saranac Lake.

Unveiling of a tablet in Wilmington Notch to commemorate fifty years of conservation in New York State. The tablet will be dedicated by Governor Herbert H. Lehman, of New York. Return to Lake Placid by way of the John Brown Homestead Monument.

In the evening, an outdoor campfire and steak dinner, with an address by J. N. Darling, Chief of the Bureau of Biological Survey, Department of Agriculture.

SATURDAY, SEPTEMBER 14

PAGEANT— Pageant depicting fifty years of conservation in New York State to be held in the Arena. President Roosevelt has been invited to review this event and has tentatively accepted. If he attends, there will be a great rally luncheon in the Arena. The morning will feature the opening of the new highway to the summit of White Face Mountains. The President has been invited to be present at this ceremony also and to deliver a brief address.

*The attendance of Secretary Wallace and Dr. Finley is subject to their acceptance.

EDITORIAL

Conservation Stewardship

IT WOULD be in the interest of governmental efficiency in conservation if President Roosevelt would put an end to the inter-departmental feud which has flamed anew over "Who's Who" in federal conservation. The unusual spectacle of two cabinet members—Secretaries Ickes and Wallace—fencing openly and somewhat militantly over this old question before committees of Congress is destructive of inter-bureau *esprit de corps* and of public confidence in administration leadership.

In fairness to Secretary Wallace, it should be stated that in this instance he is not the aggressor. The old controversy was revived a few weeks ago by a bill, sponsored by Secretary Ickes and introduced by his friend, Senator Lewis of Illinois, to designate the Department of the Interior as the "Department of Conservation and Public Works" and to authorize the President to transfer thereto all or any conservation agencies.

The hearings before the committees of Congress to which the bill was referred have sharpened old animosities and rivalries and created new ones. They have retarded conservation teamwork and stability in the federal field, and they have failed to throw any new light on a question that has been fought over and settled time and again during the past thirty years. They are unique only in representing a more aggressive and open effort on the part of the Department of the Interior to wrest forestry and the National Forests from the Department of Agriculture.

Secretary Ickes' claim for his Department as the proper fountain head of federal conservation appears based upon his belief that the Interior Department is now and has been for years prëeminent in federal conservation. However sincere he may be in that belief, facts will not bear him out. No fair-minded person will fail to give credit to his Department for some constructive conservation work, such as that performed by the National Park Service. But the whole record of the Department, past and present, is too colored with failure to conserve public resources entrusted to its jurisdiction to mislead the informed.

As evidence of his Department's conservation preëminence, Secretary Ickes presented a list of laws which he designated "of a conservation nature initiated or advocated by the Department of the Interior." Space does not permit examining the record in each case, although it would be informing. There is, for example, the Stock-Raising Law of December 29, 1916. True, it was advocated by Secretary of the Interior Lane, but as administered by the Department of the Interior it has probably hastened more than any other recent act the dissipation of the Public Domain, the destruction of its range and the dislocation of the western livestock industry.

Had this law been wisely administered with an eye to the conservation of public resources, it undoubtedly could have been made to serve some constructive purpose in the development of the West. Instead of confining its application only to tracts giving reasonable assurance that a family could make a living, the Department permitted it to become a land grabbing instrument, with the result that almost twenty-five million acres of public lands, upon most of which no one could make a living, have passed from public to private ownership. Much of the land has since become tax delinquent or is a tax burden on legitimate stockmen forced to buy out bogus settlers, who under the Department's policy, saw a chance to preëmpt range upon which established ranchmen were dependent. The Stock-Raising Homestead Act, as carried out by the Interior Department, has been declared a dismal and tragic failure. By no stretch of the imagination can it be called a conservation measure.

If the Department of Agriculture had carried out the Forest Homestead Act of 1906 with the same lack of conservation mindedness, the National Forests today would be wrecked properties like the Public Domain instead of the greatest conservation achievement of the American people.

Secretary Ickes in his "Magna Charta" of Interior conservation, it is to be noted, overlooks the Timber and Stone Act under which some fifteen million acres of the people's most valuable virgin timber have been passed to private ownership. Long recognized as an iniquitious law from the standpoint of conserving public resources, the Timber and Stone Act is still on the statute books and patents still are being issued by the Department of the Interior, thus continuing for almost half a century a policy of dissipating the forest resources of public lands. And this in spite of the fact that the Department of Agriculture for years has been urging that these forests be withdrawn from entry and added to the National Forest system for public preservation and use! Why, in the interest of conservation, has not Secretary Ickes or the Department of the Interior advocated that the infamous Timber and Stone Act be repealed and that the remaining timberlands of the Public Domain be added to the National Forests?

It is time that the public demand the perennial squabbling over conservation dominion in the federal field be stopped and that the agencies entrusted with the protection and development of our natural resources have the opportunity to perform their best work undivided and unhampered by internal strife and unrest. The American public is interested in just one thing—inter-bureau stewardship built upon cooperative accomplishment. Secretary Ickes at this time, we think, can make his greatest contribution to conservation by promoting this objective and by raising the conservation standards of his own Department.

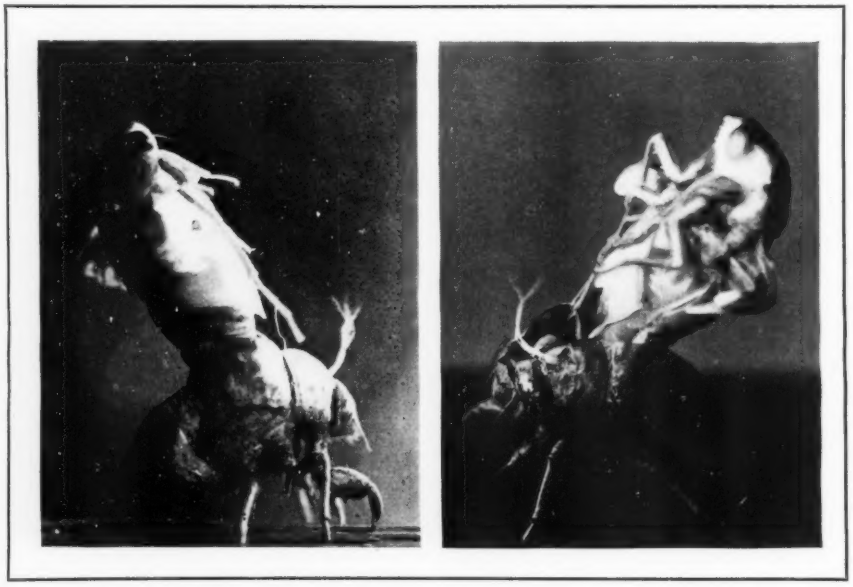
Field and Forest for Boys and Girls

THE PRIVATE LIFE OF A CICADA

By Curt Foerster

AROUND about us wherever we may choose to be are hidden bits of Nature's marvelous handicraft. Growth and transformation continue uninterruptedly, their progressive details recognized only when we stop to admire some interesting specimen which has attracted or annoyed us. Then, too, we begin to regard the relationships existing amongst members of the plant and animal worlds and can appreciate their real value to mankind, or their damaging influence on his work.

Among the many thousands of members of the more than twenty orders of insects commonly recognized in this country is an interesting little inhabitant of forest, field and orchard belonging to the order *homoptera*. This is the harvest fly or true cicada, *cicada tibicin*, so often and erroneously called a locust. Its life history on the earth's surface is a short one, consisting of two stages of its metamorphosis—from egg to larva, and from pupa to adult insect. The intervening stage occurs beneath the ground at considerable depths, and lasting for long periods of time, so remote from observation by man that practically very little is known of its details. The eggs of the cicada are deposited in sheltered slits in trees, or on twigs which they thereby cause to die, and soon develop to the larvae. The latter tumble to the ground burrowing deeper and deeper into the soil in search of the sap from the trees' roots. The few observations made possible during this stage of cicada's life history have revealed some really amazing facts. Even where the earth was apparently quite hard yet not impenetrable, the larvae have been discovered living as much as twenty feet beneath the surface. The duration of this subterranean life is quite variable, being influenced by geographical as well as climatic conditions. In the harvest fly species of the *homoptera* it is several months, at least, while in that of the "seventeen-year locust" *tibicina septendecim*, the pupal stage is reached only after periods of fifteen to seventeen years, depending upon the warmth of the seasons. In the southern states the development of the pupa of the "seventeen-year locust" may reach completion even sooner—sometimes in thirteen years. For this reason it has often been regarded as an element in predicting the severity of the following season's weather.



At left, a much enlarged view of the cicada, or harvest fly, showing the adult insect emerging. At right, the progress made twenty minutes later.

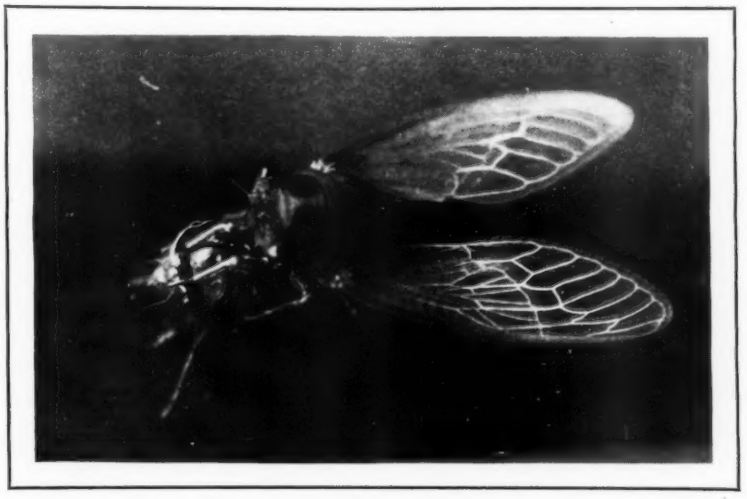
On emerging from the ground in late summer the pupa of the cicada seeks an object such as a fence post, building, or tree, climbing to heights of from one to twenty-five feet, though the general ascent is about four feet, where it attaches itself firmly in a head upward position. Nature, in this respect, has been somewhat unkind to the cicada, leaving it helplessly near the ground, and ever in danger of being discovered by passing enemies before its wings are sufficiently developed for escape.

Finally, the skin on the dorsal side of the thorax breaks and the pale green cicada, as it is familiarly presented to us, slowly emerges. The sight of this molting process is a rare one as its usual occurrence is during the night, only the dried, brown skin remaining as evidence of the transformation. It is quite fortunate, therefore, to have secured a series of photographs depicting this wonder of Nature.

The specimen photographed was found two feet above

the ground on a post in proximity to a poplar tree. As the skin of the pupa had already split when discovered it is not known how much time had already elapsed. The final period of molting, however, was little more than an hour in duration. The first photograph was made at eight o'clock in the evening and the last at nine.

The wings of the cicada are not very large, but powerful muscles give them great frequency of motion. During flight of the insect a loud droning sound is emitted by the rapidly moving wings. The beautiful structure of these appendages is shown in the last illustration where they are in position for drying. In the wing veins superstitious folks often claim to have read signs of coming events, such as the prediction of war.



One hour after the first photograph was made. Development was most rapid in the last twenty minutes. The cicada no longer appears helpless although the wings are yet saturated with moisture. Shortly afterwards the cicada sailed away.

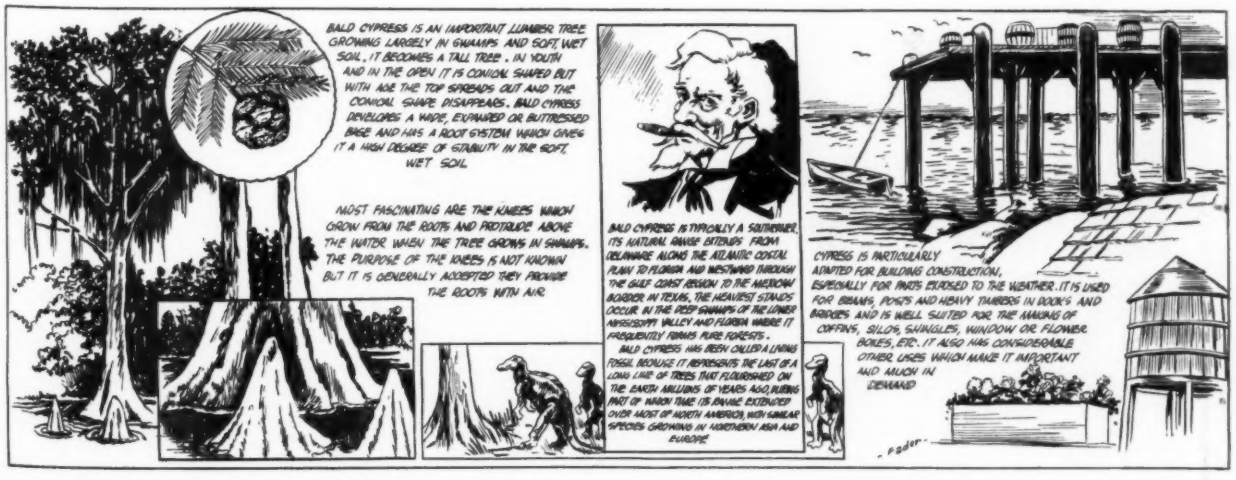
It is of interest and importance to note that a sucking tube replaces the mouth parts of the cicada. This is a remarkable and distinguishing feature. In seeking nourishment, the adult harvest fly uses this tube or proboscis to bore into the plant whose sap it wishes to extract.

The life of the winged adult cicada is but a short one of about a month. Having passed through all these stages of growth only one purpose, that for the survival of the species, remains. Behind the last pair of legs is a tightly stretched drumhead with which the cicada creates the familiar song of the summer day. Darwin described this sound to be so intense as to have been heard by him while more than half a mile from the shore.

The female harvest fly deposits her eggs, as has previously been mentioned, in slits of tree twigs or branches, and here another life history begins anew.

TREES AND THEIR USES

No. 8 - - - BALD CYPRESS


BALD CYPRESS IS AN IMPORTANT LUMBER TREE GROWING LARGELY IN SWAMPS AND SOFT, WET SOIL. IT BECOMES A TALL TREE. IN YOUTH AND IN THE OPEN IT IS CONICAL SHAPED BUT WITH AGE THE TOP SPREADS OUT AND THE CONICAL SHAPE DISAPPEARS. BALD CYPRESS DEVELOPES A WIDE, EXPANDED OR BUTTRESSED BASE AND HAS A ROOT SYSTEM WHICH GIVES IT A HIGH DEGREE OF STABILITY IN THE SOFT, WET SOIL
MOST FASCINATING ARE THE KNEES WHICH GROW FROM THE ROOTS AND PROTRUDE ABOVE THE WATER WHEN THE TREE GROWS IN SWAMPS. THE PURPOSE OF THE KNEES IS NOT KNOWN BUT IT IS GENERALLY ACCEPTED THEY PROVIDE THE ROOTS WITH AIR.
BALD CYPRESS IS TYPICALLY A SOUTHERNER, ITS NATURAL RANGE EXTENDS FROM DELAWARE ALONG THE ATLANTIC COSTAL PLAIN TO FLORIDA AND WESTWARD THROUGH THE GULF COAST REGION TO THE MEXICAN BORDER IN TEXAS, THE HEAVIEST STANDS OCCUR IN THE DEEP SWAMPS OF THE LOWER MISSISSIPPI VALLEY AND FLORIDA WHERE IT FREQUENTLY FORMS PURE FORESTS.
BALD CYPRESS HAS BEEN CALLED A LIVING FOSSIL BECAUSE IT REPRESENTS THE LAST OF A LONG LINE OF TREES THAT FLOURISHED ON THE EARTH MILLIONS OF YEARS AGO, DURING PART OF WHICH TIME ITS RANGE EXTENDED OVER MOST OF NORTH AMERICA, WITH SIMILAR SPECIES GROWING IN NORTHERN ASIA AND EUROPE
CYPRESS IS PARTICULARLY ADAPTED FOR BUILDING CONSTRUCTION, ESPECIALLY FOR PARTS EXPOSED TO THE WEATHER. IT IS USED FOR BEAMS, POSTS AND HEAVY TIMBERS IN DOCKS AND BRIDGES AND IS WELL SUITED FOR THE MAKING OF COFFINS, SILLS, SHINGLES, WINDOW OR FLOWER BOXES, ETC. IT ALSO HAS CONSIDERABLE OTHER USES WHICH MAKE IT IMPORTANT AND MUCH IN DEMAND

BALD CYPRESS

Taxodium distichum (Linnaeus) Richard

THE bald cypress, equally at home on land or in the water, lifts a massive, buttressed, tapering trunk, surrounded by curious cone-shaped knobs, above the stagnant water of southern swamps or river bottoms to carry a crown laden with drooping locks of Spanish moss. This remnant of ancient times, when similar trees were distributed over North America and northern Europe, is making its last stand in the southeastern states where it grows along the coast from southern Delaware to southern Florida, westward along the Gulf Coast into Texas, and northward up the river valleys through Oklahoma and Arkansas to southern Illinois and southwestern Indiana. Usually it occurs along low bottom lands in saturated, or seasonally submerged soil. Thousand year old trees may become 150 feet high and twelve feet in diameter, but more often they approach 120 feet in height and three to five feet in diameter. In youth the crown is narrow and pyramidal, but with age the branches spread to form a broad irregular crown.

The massive, buttressed trunk of the southern bald cypress supports a broad irregular crown of light green feathery foliage.

Although a conifer it is not evergreen, for its leaves and small immature twigs are shed each fall. The only other deciduous conifer, the larch, sheds only its leaves.

The scientific name *taxodium* comes from its resemblance to the yew or *taxus*, while *distichum* is from two Greek words meaning twice or double ranked, and refers to the two ranked arrangement on the twigs of the long, narrow, rather flat leaves. These are one-half to three-quarters of an inch long, light yellow-green, arranged spirally on the twigs, and feathery in appearance. They turn yellow or brown before they drop in the autumn.

In the spring each tree may carry male and female flowers which develop on twigs of the preceding year's growth. The male flowers are slender, purplish, three to six inches long, tassel-like clusters, while the female or pistillate flowers are scattered singly on the ends of the branchlets. These develop in a single season into spherical, purplish cones about an inch in diameter. Thick rhomboid scales fit closely together and under each may be two light brown, winged, somewhat pyramidal, horny seeds. Cypress also sprouts freely from the tree stumps during the first fifty to one hundred years.

Small, brown and more or less egg-shaped leaf buds appear on light green, slender twigs, which by winter become light red-brown and lustrous.

The reddish-brown, fibrous ridged bark of old trees peels off in long strips, and is one to two

inches thick. On younger trees the bark is light brown, less deeply ridged and thinner.

Shallow serpentine roots spread out from the buttressed base of the tree. Where water stands during part of the year these develop sharp, elongated cones or "knees" which rise a few inches to five or six feet above the mud surface, corresponding to the high water level of the locality. They are covered with thin bark, are hollow, and usually die when water is permanently drained or when the parent tree is cut. They help anchor the tree and are believed to furnish air to the roots. In spite of the unstable soils in which cypress thrives, even the tallest trees are seldom thrown by the wind.

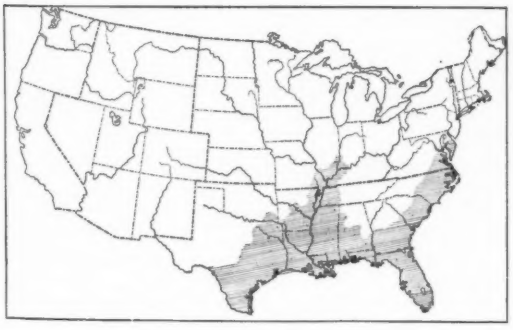
The soft, narrow-ringed, pale brown to reddish wood weighs twenty-two to thirty-seven pounds to the cubic foot when air dry, averaging about twenty-eight pounds. It is easily worked, has no resin ducts, feels slightly greasy or waxy, and has a peculiarly rancid odor. The heart wood is so durable in contact with the soil, or when exposed to the weather, as to be known as "the wood eternal." Cypress is used for structural purposes, for flooring, water tanks, ships, cross ties, shingles, coffins, laundry appliances and greenhouse equipment.

More than half of the present stand of 40,400,000,000 board feet is located in Louisiana and Florida. During 1934 the cut of 158,435,000 board feet was chiefly from Louisiana, Florida, South Carolina, Arkansas, Georgia, Mississippi, Texas, Virginia, Missouri, Tennessee and Alabama. In 1930 the cut was 490,857,000 board feet, while in 1913 it exceeded a billion board feet.

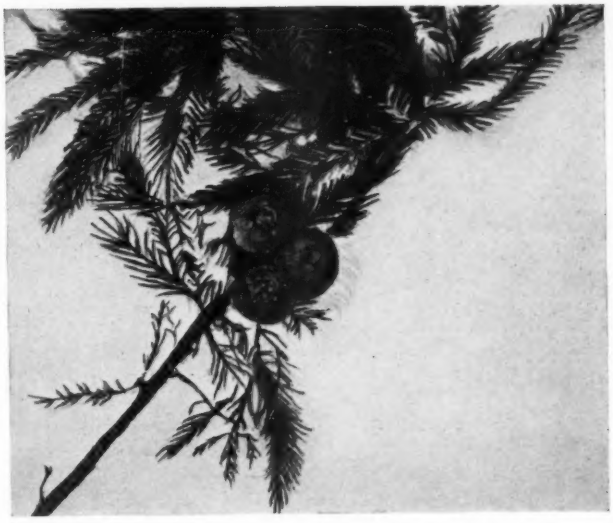
Southern cypress may grow in relatively pure stands in swampy areas or in mixture with tupelo gum, green ash, willow, overcup oak, red gum, the soft maples and elms. Single acres with over 100,000 board feet have been measured, while forty-acre tracts have yielded 1,500,000 board feet. Usually, however, stands do not exceed 8,000 to 10,000 board feet to the acre.

This last representative of an ancient race resists most insect enemies, but is subject to a heart rot fungus which fills the wood with holes to be known as "pecky" cypress. This has many uses where strength or ability to hold water are not essential. The thin bark offers little protection against fire and during years of drouth when swamps are dry great quantities of timber are burned.

Cypress is successfully planted throughout its range for ornamental and roadside purposes and individual specimens are proving hardy in central New York and over much of Indiana and Illinois.



Natural range of bald cypress.



Purplish, woody, spherical cones about an inch in diameter are borne on the twigs of the previous year's growth. Each cone may yield eighteen to thirty light brown, winged seeds.

The fluted, buttressed trunk and the "knees," which often protrude above the mud and water, are covered with fibrous, reddish-brown bark. The "knees" are usually hollow and are part of the shallow roots. They are believed to furnish air when the base of the tree is submerged.

AROUND THE STATES
WITH
THE AMERICAN FORESTRY ASSOCIATION

$2,500,000 FOR DUTCH ELM DISEASE CONTROL

President's Allotment Board Grants Relief Funds to Meet Critical Emergency

The President's Allotment Board, on July 23, authorized the expenditure of $2,500,000 from relief funds to continue the fight against the Dutch elm disease. This makes a total of $2,750,000 granted by the Board, $250,000 having been approved on June 3. This large sum will enable control work to continue after August 1, at which time the first allotment will have been exhausted.

It will also enable control work to be extended to other regions where Elm infections have been discovered—notably in Ohio, Indiana, Virginia and Maryland. Up to the present all work has been concentrated in the 4,500 square miles around New York City, embracing areas of New York, Connecticut and New Jersey. It will likewise release state funds, particularly in New Jersey, where a state appropriation of $50,000 for the current fiscal year remains unused because of the Federal Government's delay in providing funds. Authorization of the New Jersey appropriation was based upon the Federal Government providing $500,000 for control work in that state.

Under regulations governing the expenditure of public work funds, from which the $2,500,000 is allotted, ninety per cent of the money must be spent in employing men from relief rolls. This will bring into the fight against the disease approximately 2,000 untrained workers to reinforce the 2,246 men already employed. It is estimated that about one-third of these workers have the capacity, when properly trained, to recognize diseased conditions in an elm tree and to perform the arduous and dangerous task of climbing the tree in order to secure specimens for further examination, or to cut it down. Less than 1,500 men, therefore, will be available, when trained, to perform work other than the cutting and burning of infected or suspected trees. Ten per cent of the new allotment will be used to employ technical men and those trained in scouting the disease. In addition to this, the Agricultural Appropriation Bill carries $261,156 for control work and this sum is being used for the employment of trained men.

From the beginning of the emergency more than a year ago, Federal policy has been subject to delays incident to securing and expending emergency funds. The fact that Congress failed to make adequate direct appropriations forced control to the status of a relief project. On two different occasions control work has been stopped for lack of funds—once last fall, and again this spring, when for nearly a month during the height of the spring growing season no control work was done.

Rigid application of the regulations governing the expenditure of public work funds requiring that they be used primarily to take people off the relief rolls has necessitated the dismissal of trained men and the employment of inexperienced and incompetent men on control projects. This has hampered the accomplishment of a job demanding technical leadership and has resulted in inefficient control work by government agencies.

The Federal Government's record in the handling of the Dutch elm disease emergency is as follows:

Early in 1933, Congress provided $150,000 for the fiscal year beginning July, 1934. By August 1, 1934, approximately 6,500 infected trees had been located in New York, Connecticut and New Jersey. The $150,000 was exhausted in the early fall, and the field work of scouting and eradication was of necessity stopped.

Under pressure of public demand, the Public Works Administration allocated $527,000 to continue the work on December 4, but the money was not available until December 18. Then 1,200 men were thrown into the fight. These funds were exhausted on May 14, however, and again all men were dismissed and the field work discontinued.

The Agricultural Appropriation Bill, carrying $261,156 to be immediately available for control and prevention of Dutch elm disease, was signed on May 17, 1935. Larger sums requested by representatives of the Department and by the public were refused on the assumption that they would be provided from work relief sources.

Early in June the Federal Allotment Board made available $250,000 to resume the work. This was one of the first items to be taken from the $4,800,000,000 relief fund. But because of the rule that the funds be spent to take men from relief rolls, a new army of inexperienced men had to be employed and schooled. Thereby the government lost the value of the men it had been training since last December.

The allotment of $250,000 was nearing exhaustion when the Allotment Board granted the $2,500,000 needed to complete the control program on July 23, and the $261,156 of regular appropriation heavily drawn upon. The latter is the only unrestricted money available for carrying on the technical supervision of control work and must be budgeted through the entire year. The Director of Relief had been asked by a group representing the public to make an exception to the rule that ninety per cent of all men employed with relief funds must come from relief rolls. It is understood that he is adamant on this issue, and will release no funds unless they are accepted according to his terms.

With the limited field force, only twenty-five per cent of the infected area is being scouted at the present time, and eradication of infected trees is lagging.

Funds available before the July 23 allotment limited all eradication and scouting work to a limited area around New York City. No other scouting has been possible, but there is indication that the disease is spreading where other diseased logs have been received along the railroads over which they have been carried from the eastern seaports. Infections have been found recently in Ohio, Indiana, Maryland and Virginia.

More than 600,000 elms in New York, Connecticut and New Jersey have been destroyed in the 4,500 square miles affected by the Dutch elm disease.

Efforts to control its spread up to the present time have been ineffectual—due chiefly to delays on the part of the Federal Government. On two different occasions control work has been stopped because of lack of funds.

Authorization of $2,500,000 by the President's Allotment Board on July 23, however, will enable the Department of Agriculture to complete its program of eradication and control insofar as man-power and equipment are concerned. The fact that ninety per cent of the new authorization, under regulations governing the expenditure of public work relief funds, must be spent in employing men from relief rolls, may delay in some cases the employment of an adequate force of trained scouts and technical workers. Unless the remaining ten per cent of the new allotment and what remains of the $261,156 provided for control and prevention of the Dutch elm disease in the Agricultural Appropriation Bill is sufficient to employ adequate technical supervision for the term of the control project, an additional appropriation of unrestricted money will be necessary. An army of unskilled relief workers may operate effectively only to the extent technical leadership is available.

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NEW LAWS ADVANCE FORESTRY IN FLORIDA

Seven laws providing a definite and planwise forest program for Florida were passed during the recent legislative session at Tallahassee and signed by Governor David Sholtz on June 4. Appropriations totaling $141,700 were also approved, including $84,200 a year for the next two years for the Florida Forest Service.

The newly enacted laws make it unlawful to wilfully or carelessly set fire to another's property, and all state and county contractors are required to fight all fires within 200 feet of a public highway. Each county may take a referendum to determine whether or not organized fire prevention and control work shall be undertaken in cooperation with the Florida Board of Forestry, and the same board may set up forest protection districts within which permits will be required for any burning. As a means of enforcing this, the board may take a lien against property on which the owner fails to pay the fire control assessment.

A State Park Service under the Florida Board of Forestry is being established to cooperate with federal, state and county agencies in acquiring, developing and administering state parks, with $25,000 appropriated for the next two years. Another $25,000 is appropriated to acquire and manage state forest areas.

Forestry education is given an impetus with an appropriation of $7,500 to provide for teaching forestry at the University of Florida. This is done with the expressed hope that the work will prove a nucleus for the establishment of an outstanding forestry school at the university. In addition, state educational institutions and high schools will be required to give courses in the conservation of natural resources.

The new laws, with the supporting appropriations, were developed by a committee of twenty leading citizens representing wood-using industries, land owners, civic clubs and the State departments, assembled last March at the call of Governor Sholtz, in accordance with President Roosevelt's letter to all governors of January 2, 1935.

LUMBER CODE AUTHORITY LIQUIDATING

The lumber industry is not participating in any voluntary agreement or code under the revised N.R.A. and the Lumber Code Authority is now definitely winding up its affairs. Major David T. Mason, the executive officer of the Authority, has returned to Portland, Oregon, where he will actively resume his position as manager of the Western Pine Association. The remainder of the executive staff in Washington also have left, with the exception of Carl Bahr, executive secretary and treasurer, who will have charge of the liquidating of the corporation. Mr. Bahr will then return to the staff of the National Lumber Manufacturers Association in charge of a department devoted to cooperation with the various units of the lumber manufacturing industry, other industries, and state and national governments in studying and assisting in the solution of problems of creation and maintenance of suitable machinery and practices of industrial self-government.

At its meeting in Chicago, the Executive Committee of the Board of Directors of the National Lumber Manufacturers Association formally expressed a desire to maintain "the constructive provisions on wages, hours, conservation and fair trade practices." The committee urged members of the lumber industry to continue to maintain wage standards as high as those specified in the Lumber Code, including observation of a work week of not more than forty-eight hours.

It was also decided that the association would take over the forest conservation work inaugurated during the past two years under the Forest Conservation Code. John B. Woods, who was chief of the Department of Forestry of the Lumber Code Authority, will be employed by the National Lumber Manufacturers Association in a similar capacity, and all of the associations in the field of the lumber and timber products industries are expected voluntarily to continue their conservation activities.

CONSERVATION ALLOTTED WORK RELIEF FUNDS

Allotments totaling more than $50,000,000 have been approved by the Works Relief Board for forestry and conservation. Among these are $25,000,000 for the Soil Conservation Service and $15,000,000 for the Forest Service. This last item includes the $13,827,500 announced in AMERICAN FORESTS for July, with an additional $1,172,500 approved later for administrative expenses. It is understood that the President specified that not more than twenty per cent of the total Forest Service allotment, or $3,000,000, may be expended for the acquisition of forest lands. The only other specific allotment is one of $2,500,000 for continuing and developing the shelterbelt project in the plains states. The remainder is being distributed among the ten regions from which the National Forests are administered. It will be used for the construction of roads, trails and improvements to aid in the development and protection of the National Forests, as well as for controlling forest insects and diseases. The Forest Service originally requested $156,000,000.

With $6,378,735 allotted to control white pine blister rust, continuation of the program throughout the white pine areas is assured. While much of the work of blister rust control is being carried on in New England, New York and the Lake States, the bulk of this money will be spent to protect the great stands of western white pine in Idaho, Montana and eastern Oregon and Washington.

For the control of gipsy moth, $2,800,000 has been approved, and $970,000 for the control of the brown tail moth. The destruction caused by these two insect pests is in the northeastern states, and the allotments will supplement federal and state appropriations, and civil work projects approved during the past year. The chief feature of the gipsy moth control program is the maintenance of a barrier zone twenty to thirty miles wide, extending from Long Island along the eastern New York State line to the Canadian border, and the eradication of a colony in northeastern Pennsylvania. While control is a primary object, efforts will be continued to keep the moth from progressing west.

No allotment has been made for the National Park Service and nothing additional has been given Dutch elm disease control. Treasury warrants which make possible the actual expenditure of the several sums, totaling $50,148,000, had not been signed over to the bureaus as this goes to press. Thus far, the only sum of Works Relief money actually available for forest and conservation is $250,000 allotted to Dutch elm disease control.

How DYNAMITE *streamlines streams*

Straightening of Pequest River in New Jersey by CCC workers stopped its yearly floods. Location of new channel is seen at right. Note temporary dam at left to provide volume of water for scouring blasted channel.

Explosion of dynamite charge by propagation excavates new channel.

Immediately after explosion, water is entering new channel, whose banks will be smoothed and "stream-lined" by the speedier flow of water.

CROOKED STREAMS are a menace to life and crops in the areas bordering on their banks. The twisting and turning of the channel retards the flow and reduces the capacity of the stream to handle large volumes of water. Floods result. Crops are ruined. Lives are lost. Banks are undermined, causing cave-ins that steal valuable acreage.

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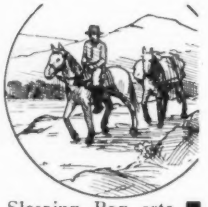

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ICKES ANGERED AS FORESTERS CHALLENGE INTERIOR DEPARTMENT'S CONSERVATION CLAIMS

A press release challenging the function of conservation in the Department of the Interior, issued on June 24 by the Society of American Foresters over the signature of Professor H. H. Chapman, of the Yale Forest School, president of the Society, drew a scathing reply from Secretary Harold L. Ickes on June 27. The Society's statement resulted from hearings on the Lewis-Cochran bill to change the name of the Department of the Interior to the Department of Conservation and Public Works and make it possible to transfer to the Department the Forest Service and other conservation agencies of the Department of Agriculture.

In a letter to Professor Chapman, Secretary Ickes said:

"I have before me a press release of the Society of American Foresters, the heading of which is 'Foresters challenge conservation claims of the Department of the Interior.' This release, except for a brief introductory paragraph, consists entirely of what purports to be a statement by you. I do not suppose for a moment that you wrote this since it bears strong internal evidence of having been prepared by certain interests here, yet since you permitted it to be issued in your name, you are undoubtedly willing to be held responsible for it.

"May I say that the linking of my name with that of former Secretary Fall is highly offensive to me. This is a studied and deliberate affront to which I take the strongest possible exception. There is no more warrant for this unprovoked assault upon my character than there is for me to say of you, on the basis of your statement, that you are a fair fighter and an honorable opponent. One is just as far from the truth as the other.

"Your sneering reference to me as though I were one in spirit with Mr. Fall was undoubtedly intended to be insulting. Ignoring chronological order, you start with Mr. Fall's name in a list of Secretaries of the Interior and you print it in full, evidently with the enjoyment of one who has played a clever but questionable trick. Messrs. Lane, Wilbur, and Work you do not tarry over. You put their names in as quickly as possible and then end with Ickes. Of course, you had to include some other names with those of Mr. Fall and myself, but you did so in a way to emphasize rather than to conceal the name of my malodorus predecessor.

"Some men prefer to fight with stink bombs because they enjoy the smell.

"I will not pause over the puerile argument that fills some four and a half pages of your circular. After all, it is not unusual to set up a straw man in order to show one's intrepidity in knocking it down. These feeble utterances I have dealt with here in open debate when they were advanced by the men who apparently wrote your circular for you.

"I cannot forbear, however, from thanking you for telling me that trees really do grow. My doubts on the subject are now happily resolved. I bow in meek acquiescence before the erudition of a man who so deservedly occupies an important chair in a great university. But do you still insist that trees are 'a growing crop like peanuts or onions?'

"I venture to inquire by what authority you spoke as you did in the name of the Society of American Foresters? Did you take a referendum of the membership or did you call together a meeting of the Board of Directors? If the latter, where and when was the meeting held and who were in attendance? If such a meeting was held, how was the case of the despised Department of the Interior presented and by whom? Even the President of the Society of American Foresters, below-the-belt fighter though he may be, would, of course, insist upon the right of even a contemptible department of the government to be heard on so important an issue as is involved in the bill upon which you have poured forth the vials of your uninformed wrath."

On July 3, Professor Chapman replied to the Secretary as follows:

"I take pleasure in answering your courteous inquiry of June 27. . . . .

"The authorship of the article, which you question, is, as stated, my own. It was prepared by me personally. I have never in the thirty years of my connection with the faculty at Yale and with forestry found it necessary to employ ghost writers or submit to the dictates of bureaucratic superiors in the determination of what should be written or said in the public interest.

"Answering your inquiry as to my authority for issuing statements on the subject of possible transfer of conservation agencies to the Department of the Interior, I am glad to inform you that this authority was voted by the Executive Council of the Society of American Foresters on October 31, 1934. This council consists of eleven men, five of whom are connected with educational institutions, including Yale, New York State College of Forestry, Duke University, University of Washington, and University of California; two are state foresters, of Connecticut and Maryland, respectively; and four are in federal employ. This council is a representative body elected biennially by ballot of the entire membership of 2,500 professional foresters, under a system of proportional representation. Any act of the council may be submitted by ballot to the members on a petition signed by 50 members. If you will examine the several hundred letters and petitions received by President Roosevelt last fall on this matter, you will have the evidence that the members of the Society of American Foresters approve of this official attitude of their Executive Council.

"The professional societies of America, including forestry, engineering, law, medicine, and others, reserve the right to express opinions on questions affecting public welfare and lying within their field of training, nor do they intend to be bulldozed, brow-beaten, nor coerced into either silence or acquiescence when measures are proposed that tend to jeopardize the prospects of technical success in the field of their professional training. The ability of heads of Federal Departments to muzzle public employees even in other departments does not yet extend to professional societies, whose membership, as in forestry, extends to all fields of employment, and is not confined to federal payrolls. The Executive Council of the Society of American Foresters is no more under the domination of the Secretary of Agriculture than it is of the Secretary of the Interior.

"The above statement covers my authority. I wrote the statement as President of the Society. The sources of my information were the printed records of your own testimony before Senate and House Committees, your mimeographed news releases, and the historical facts with which I have been familiar during my 30 years connection with the development of forestry in the United States, as a member of the Yale forestry faculty and in continuous contacts with national affairs over this period, and active participation on several previous occasions in defeating similar attempts to capture the control of conservation of organic resources by your department.

"What I wish to emphasize, in view of your assumption that I did not write this statement,

is that the opposition to your proposals, which you attributed in your public testimony to a few members of the United States Forest Service, comes instead, spontaneously from the entire profession of forestry, from all the interests which are represented by agriculture and soil conservation, and from such widely representative popular bodies as The American Forestry Association and numerous other organizations.

"Are you aware, Mr. Secretary, that in order to supply you with proof of the charge which you have made to me that this opposition was inspired by 'certain interests' which you have stated to be the Forest Service, the Department of the Interior has been engaged in sending out inspectors to run down the source of letters of protest against Senate Bill 2665, and to try by inquisition to establish the fact that these letters were thus inspired and were not spontaneous? Has it come to the point when citizens are subjected to cross examination for expressing an opinion contrary to the objectives of the Department of the Interior? Was this done with your knowledge or consent?

"If your purpose in introducing this apparently innocuous bill to change the historic name of the Department of the Interior to that of Conservation and Works was wholly altruistic, why did you display so much indignation when Mr. Silcox, as the representative of the Secretary of Agriculture, endeavored unsuccessfully to secure from you at the Senate hearing a statement as to what agencies would be considered as falling under the term 'conservation'?

"The error you have fallen into, Mr. Secretary, is in supposing that this little bill could be slipped through a committee without attracting attention, thus legalizing the claims that successive Secretaries of the Interior, including Lane, Fall, Work, and Wilbur have put forth in an effort to bolster up the waning activities of their department, which historically had pursued the suicide route of scattering the public land resources of the Nation to the winds of heaven, not only figuratively, but literally, through false economic theories underlying the stock grazing homestead laws and the failure to protect the public domain from ruinous overgrazing.

"Facts cannot be brushed aside as puerile, nor public opinion treated with silent contempt. . . . ."

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When all is said and done, the actual efficiency of fire apparatus depends upon the water supply. In cities and towns the water supply is practically unlimited. But in the Forest Districts the water supply is so limited that ordinary apparatus could not qualify at all. Nor would the investment be warranted from a mechanical or financial standpoint.

Champion Trailer Apparatus just fits in where some real adequate fire protection is needed. A new development by the Fire Engineers of Darley & Co.

Simple, very praiseworthy, we believe. In fact, a very capable fire apparatus. Fully equipped with pumping Engine, a special Fire Pump, Hose on Hose Reel, Water Tank, Hand Extinguishers, Fire Axe, Pike Pole, Siren, Flood Searchlights, Electric Fire Lanterns, Nozzles, Valves, etc. . . . just about everything a fire truck carries.

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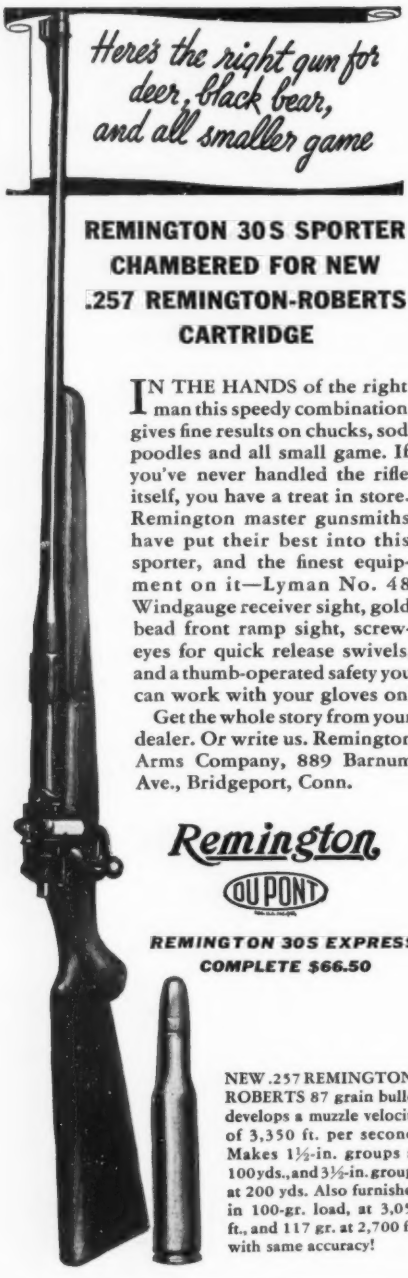

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THE AMERICAN FORESTRY ASSOCIATION

1713 K St. N. W. Washington, D. C.

C.C.C. Enrollment Lagging

Difficulty in filling Civilian Conservation Corps allotments direct from relief rolls, particularly in the more populous centers, may result in an order increasing the age limit so that each of the states may contribute in full toward the peak strength of 600,000 men authorized by the President. New York, Illinois and a number of other states in which there are large cities have indicated that they cannot fill C.C.C. quotas under the terms of the executive order, which places the maximum age limit at thirty and provides that only one member of a family may be enrolled either in the C.C.C. or other work relief projects. As a consequence, it is pointed out, many families on relief refuse the opportunity for an enrollment in the Corps on the grounds that it will make it impossible to participate in other and better paying relief projects.

On July 1, but 51,000 new men had been added to the Corps. To meet the schedule set by the President, a total of 300,000 new men must be in conditioning and forest work camps by August 1.

Rented Acres For Shelterbelt

The Agricultural Adjustment Administration on June 19 announced completion of an agreement through which the Forest Service in its shelterbelt program may use acres taken out of basic crop production under A.A.A. contracts. Contract signers would continue to receive, for the duration of the contract, regular A.A.A. rental payments for any land thus taken over.

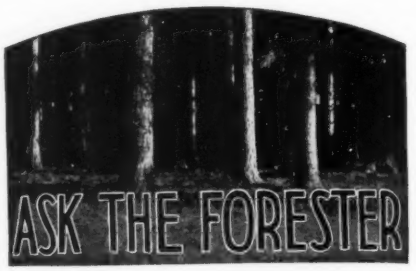
The agreement is permissive only. The Forest Service would use only acres adapted to its shelterbelt project. Farmers will be at liberty to accept or reject the offers of the Forest Service.

Two phases of the shelterbelt project involve A.A.A. cooperation. They are strip planting and farmstead planting. About 1,300,000 acres would be required for strip planting.

The agreement provides not only that the Forest Service, with the consent of signers of A.A.A. adjustment contracts, may use for shelterbelt planting rented acreage retired from basic crop production but also that in some cases changes in the actual tracts taken out of production will be approved so that the Forest Service may obtain land more suitable than the acres originally retired.

For the duration of the A.A.A. contract, landowners would continue to receive rental payments on areas taken over by the Forest Service, but would receive no extra rental from the Service. The Service would then fence the land, supply trees, plant and maintain them. In taking over the land it would make lease-option agreements to insure control of the land by the Forest Service after expiration of the crop adustment contract, and to provide for purchase at a stipulated price at a time selected by the government.

The second phase of the project is farmstead planting, which provides for small woodlots and for trees around farm buildings. It would affect a minimum of 900,000 acres. The Forest Service would agree to supply the trees and plant them. The landowner would agree to keep cattle out and otherwise maintain the new woodland. He would receive A.A.A. rental payments, as in the case of strip planting on acres covered by production control contracts. There would be no provisions for a continuing Forest Service control of farmstead woodlots, or for eventual purchase.



Forestry Questions Submitted to The American Forestry Association, 1713 K St., N. W., Washington, D. C., will be Answered in this Column. . . . . A Self-Addressed Stamped Envelope Accompanying Your Letter will Assure a Reply.

✣ ✣ ✣

QUESTION: Is the Chinese elm, *Ulmus parvifolia*, resistant to the Dutch elm disease?—W. P. V., Indiana.

ANSWER: Authorities in the Department of Agriculture report Chinese elm to be decidedly resistant to the Dutch elm disease.

QUESTION: I have recently planted a walnut tree about twenty feet from an apple tree. Recently I read an article saying these trees are antagonistic. Please tell me why and if there is any remedy.

ANSWER: AMERICAN FORESTS for October 1928 referred to the work of Professor A. B. Massey of the Virginia Agricultural Experiment Station who reported that the bark of walnut roots contains a substance poisonous to the roots of tomato, alfalfa and potato plants. This same article referred to openings which frequently exist under and around black walnut trees in some forest formations,—particularly loblolly pine in the southeast. On the other hand, reference was made to blue grass and a few other plants such as blackberry bushes which thrive under walnut trees.

It is doubtful if the apple tree at a distance of twenty feet will suffer immediately from any effects of the black walnut. As the two trees develop some retarding on the side near the walnut will probably be noticed. It is doubtful, however, if the apple tree will be actually killed.

QUESTION: If a copper nail is driven in the trunk of a tree, will the tree die? If so, what is the cause?—R. L. R., Wisconsin.

ANSWER: A copper nail driven into the trunk of a tree will not result in the death of the tree. Even the most active poisons have to be injected in a ring or strip entirely girdling the trunk to result in death.

QUESTION: What term is most often applied to flowers which hold their petals in the forenoon only, such as the spiderwort and Linum (flax)?—L. S., Wisconsin.

ANSWER: The word "caducous" is perhaps most often applied to flowers like those of the spiderwort and flax which hold their petals only in the forenoon. "Caducous," according to Webster's New International Dictionary, published by G. and C. Merriam, is from the Latin, "caducus," meaning falling or inclined to fall. As used in botany it means falling off very early, as the calyx of a poppy. Another word which might be applied is "fugacious" which comes from the same Latin root as "fugitive." This is used in botany to refer to the falling of the petals soon after they have expanded into full bloom. The third word which is less specific is "matutinal" which is defined as of or pertaining to the early morning.

Civic Association and Conference on City Planning Merge

The American Planning and Civic Association was organized in Washington, D. C., July 1, as a result of a merger of the American Civic Association and the National Conference on City Planning.

The purposes of the new association will include the promotion of public understanding and support of national, regional, state and local planning for the best use of urban and rural land, water and other natural resources; the advancing of higher ideals of civic life and beauty in America; and the safeguarding and development for the largest good to the people of natural wonders and scenic possessions and of national and other parks and recreational facilities.

Frederic A. Delano, of Washington, president of the former American Civic Association, was elected president of the new organization. Harold S. Buttenheim, of New York, president of the former National Conference on City Planning, and editor of *The American City*, was elected first vice-president; Horace M. Albright, former director of the National Park Service, and now vice-president and general manager of the United States Potash Company, of New York, second vice-president; Colonel Richard Lieber, of Indianapolis, president of the National Conference on State Parks, third vice-president. George W. White, of Washington, was elected treasurer.

Harlean James, Executive Secretary of the former American Civic Association, was chosen as Executive Secretary of the new association and Flavel Shurtleff, secretary of the former National Conference on City Planning, was named as special counsel.

The American Civic Association was organized in 1904, the National Conference on City Planning in 1909. The annual publications of the two associations, which were the *Proceedings of the National Conference on City Planning*, and the *American Civic Annual*, will be issued as one volume. Headquarters of the Association will remain in Washington, D. C.

State Universities Will Teach Game Management

Courses in game management, to be set up in several state universities, will have the active support of the Bureau of Biological Survey, which is prepared to supply instructors and to cooperate with the universities and with state game commissions in financing this new development.

J. N. Darling, chief of the Bureau, in announcing this new policy, said one of the leading American manufacturers of arms and ammunition has agreed to contribute $30,000 a year for the purpose. The Biological Survey will be able to supply $42,000. The game commissions and universities also will share in the expense.

The staffs of the new courses will do research work in wildlife subjects as well as in teaching the application of modern game management methods. Many universities now have important schools of forestry. It is anticipated that the new educational service in game management will follow similar lines.

Commenting on the $30,000 annual contribution from the arms manufacturer, Mr. Darling said he "deserves to be commended for his generosity and for his sound business judgment as well. I shall probably be called bad names because I am accepting a contribution from this source. There will be some who will see in this an outrageous attempt on the part of a wicked industry to buy its way into heaven, or to camouflage its evil motives with $30,000 worth of whitewash. An abundance of game means profits for the industry, of course, but also for others — farmers, transportation companies, hotel keepers, merchants, and many more. If anyone wants to devote a part of his profits to maintaining the resource the least we ought to do is to use the money to the best advantage. Appropriations and contributions for the benefit of wildlife are by no means so generous that we can afford to toss $30,000 out of the window and rap the knuckles of the hand that made the offer."

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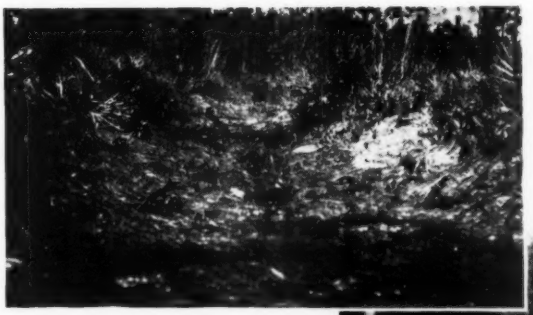

Back in 1931

This fire line was made by a Hester Fire Line Plow at a Fire Line Congress on the Osceola National Forest, Olustee, Fla.

. . . Today

There is very little more vegetation in the line than is shown in the above photograph taken a year ago this May, 1935.

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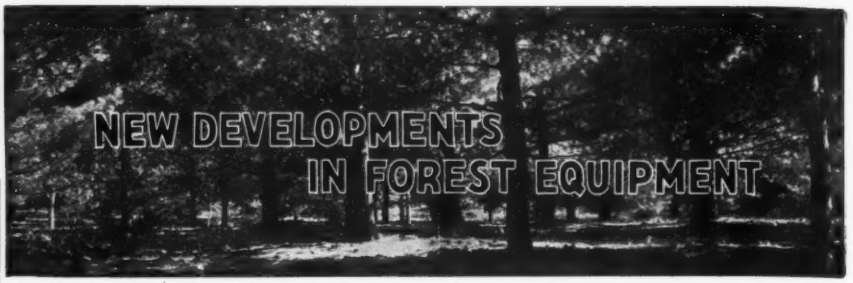

Elevating Grader

The Austin-Western Road Machinery Company, Aurora, Illinois, has just issued an Elevating Grader Bulletin. It will be of special interest to those who think of elevating grader performance in terms of four-wheeled machines. Such users will find it easy to revise their conception of elevating grader capacity stability and flexibility in the light of this new three-wheeled elevating grader with its trough-type carrier and adjustable furrow wheel.

Provided only that the nature of the job and the condition of the soil favors its use, practical earth movers have long realized that nothing equals the elevating grader for moving dirt in largest volume at lowest cost.

Spark Arresters

The inflamable nature of vegetable ground cover during the dry summer season has caused the Agricultural Experiment Station of the University of California to make thorough studies with a view of perfecting equipment which will reduce fire hazards in fields and forests. In the rural districts many fires have been attributed to ignition of the exhaust system of motorized equipment. Several commercial spark arresters now on the market were found to be above ninety-five per cent in efficiency. One was found to be below twenty per cent although all experiments showed that the arresters with the highest efficiency created the least back pressure on the exhaust system. The average muffler cannot be considered a satisfactory spark arrester although it no doubt assists somewhat in the cooling of carbon particles. It was found that the placing of an iron screen over the exhaust pipe presented considerable danger as holes burned through without the operator's knowledge.

These extensive experiments are fully outlined in a recent publication of the University.

Leaning-Wheel Graders

Two leaning-wheel graders of new design have just been announced by the J. D. Adams Company, Indianapolis, Indiana. They are known as Models 105 and 125 with ten and twelve foot blades and may be had with either hand or power-operated controls and with a wide range of blade adjustments. Weights of power-controlled graders without scarifier are 7,900 and 10,145 pounds respectively. Scarifiers are available for both graders.

Power for operating the controls is supplied by a one-cylinder Wisconsin air-cooled engine. It is cranked from the platform by a detachable crank and the controls operate fast at a uniform speed in either direction. On the hand-controlled machines a foot pedal operates a pin which locks the position of the blade circle and blade. Equalizing lift-springs are furnished to make the blade adjustments easy.

Money From Sawdust

The Massachusetts Department of Conservation has found a new use for material removed as a result of forest thinnings and slashing. Forest owners are aided in locating a market for cordwood, sawdust and wood shavings.

Reforestation at best is a lengthy process and unless there is a possibility of some financial return before the crop is ready to market the likelihood is that private forestry as a business may be discouraged.

With this fact in mind Robert B. Parmenter, extension forester, found a suitable use for these formerly waste products. Some of it is used as cordwood. The rest which is too small for that use is converted into sawdust or wood shavings. This process is performed by a newly designed portable grinder adapted for this purpose.

There is an increasing demand for these products for use as bedding in cattle barns, poultry houses, for wood flour used in chemical preparations and as cleansing material for fur and silver. It is also used for packing and insulating material. Some of the material is pressed into briquets for use as fuel.

The prices quoted range from $2 a cord for sawdust with the bark in it to $8 to $10 a cord for sawdust free from bark. By the carload, sawdust sells for $120 and $130.

Wood Preservative

A new and improved wood preservative—Chromated Zinc Chloride—is announced by The Grasselli Chemical Company. This preservative was developed after a thorough investigation of all the salt-treating agents used commercially and other materials suitable for preserving wood. The compound has been subjected to comparative tests and the results are set forth in a recently issued bulletin, copies of which may be obtained by writing to the company.

Logging Tractors

The Caterpillar Tractor Company of Peoria, Illinois, has just issued a new publication which should be of special interest to farmers and other private timberland owners with merchantable timber on their land. It is called—"Logging the Year 'Round with the Caterpillar Twenty-Two." This tractor is not the largest machine in the company's line, but it has ample power for many logging jobs. The booklet features many difficult operations which can be performed including winter and summer logging, hauling over icy roads, swamps and deep mud.

Further information concerning any of the above products will be supplied in your self addressed stamped envelope mailed to American Forests, 1711 K Street, N. W., Washington, D. C.

SAPLING SAM'S COLUMN

The Rub

Here's to the chigger,
That grows no bigger
Than the point of a pin.
But the lump he raises
Itches like blazes,
And that's where the rub comes in.

Honk!

A Miamian was speeding along a road near Homestead in his car, business bent. He glimpsed a shadow, heard a loud squeal, and saw a fat pig bounce high off his front bumper. The motorist halted his car.

A seedy party came running from a nearby house. "You've went an' killed m' bes' hawg!" he wailed. "It'll cos' yo' fifteen dollars. I'll have the law on yuh!"

The motorist considered. "My friend," said he, "would you be so kind as to step around in back of my car?" The farmer did so. "See that auto license tag? I paid the state seventeen bucks for that, for the privilege of using this road I paid that so's I can drive up and down here.

"Now! Let's see the tag on your pig."—*Lumber Cooperator.*

Mathematics on the Ark

After the flood was over Noah went back to see if all the animals were out of the ark. He found a pair of snakes in a corner weeping copiously. When he asked them what the trouble was, they said: "You told us to go out and multiply upon the earth, and we cannot, for we are adders."

Pick and Shovel

A man from Kansas was looking into the depths of the Grand Canyon. "Do you know," said the guide, "it took millions of years for this great abyss to be carved out?"

The man from Kansas was tremendously impressed. "You don't tell me," he commented. "Why I didn't know this was a government job."—*Service Magazine.*

Recollections

Traveler: "My, the air up in these mountains is surely great, isn't it?"

Old Mountaineer: "Well, jes' fair to middlin', stranger, jes' fair to middlin'. 'Taint nothin' compared to like it wuz back in Cleveland's 'aministrashun."

The Stork Remembered

Emily had just fed some crackers to the stork at the zoo.

"What kind of a bird is that?" Emily asked her mother.

"That is a stork," replied the mother.

"Oh dear, is that the stork? He acts as if he recognizes me."

U. S. Fighting Twenty-Eight Fires a Day

Increasing fire hazards are reported in many of the 150 National Forests of the United States at the mid-year point this season in the annual battle with the flames, according to the Forest Service.

In the last ten days of June, Forest Service protective crews had to fight an average of twenty-eight fires a day. An average of twenty of these fires was man-caused—from matches and tobacco dropped in the forests, from unguarded camp fires, brush burning, and other sources.

The Forest Service "box score" of telegraphic fire information, gathered every ten days, shows that National Forests in the first half of 1935 had 3,238 fires against 3,459 for the same period last year. However, 2,902 of the 1935 fires were man-caused, against 2,279 for the first half of last year. Area burned so far this year jumped considerably—105,146 acres, against 72,035 acres in the first six months of 1934.

The increase in losses this year for the National Forest system as a whole is largely accounted for by the several million acres of land newly purchased for National Forest purposes in the Southeastern and North Central regions. In these new areas the Forest Service protective system has not yet been fully developed, and local educational work against prevalent woods-burning practices has not yet become effective. Three out of four of the man-caused fires in National Forests this year and more than ninety per cent of the acreage burned were in these two regions.

All of the western regions except California have cut down the number of forest fires so far this year, and in California the acreage burned is only about one-tenth that of the first half of 1934

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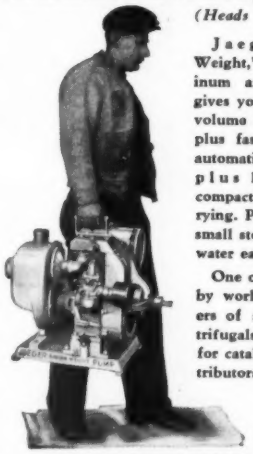

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Conservation Calendar in Congress

Published monthly while Congress is in session as a service to the members of The American Forestry Association. This calendar contains bills introduced in the First Session of the Seventy-fourth Congress between June 16 and July 15, as well as any action taken on bills previously listed.

BILLS APPROVED

S. 462—McNary—Extension of exchange authority and addition of public lands to Willamette National Forest in Oregon. Approved June 13. Public Law No. 130.

S. 654—Thomas—Exchange of lands reserved for Seminole Indians in Florida. Approved June 14. Public Law No. 135.

S. 1513—McNary—Adding certain lands to Siskiyou National Forest in Oregon. Approved June 13. Public Law No. 131.

S. 2131—Connally and Sheppard (H. R. 6373—Thomason)—Establishing Big Bend National Park. Passed Senate May 1. Passed House June 15. Approved June 20. Public Law No. 157.

H. R. 7982—Kleberg—Amending the Migratory Bird Hunting Stamp Act of March 16, 1934, and certain other acts relating to game and other wildlife administered by the Department of Agriculture. Passed House June 5. Passed Senate in lieu of S. 3006 June 10. House agreed to Senate amendment with an amendment June 13. Senate concurred in House amendment June 14. Approved June 15. Public Law No. 148.

H. R. 3012—Cary—Authorizing transfer of certain lands in Hopkins County, Kentucky, to the Commonwealth of Kentucky for State park purposes. Passed House May 6. Passed Senate June 27.

S. 1831—Hatch (H. R. 6235—Rogers)—Authorizing transfer of certain national forest lands to the Zuni Indian Reservation, New Mexico. Passed Senate March 29. Passed House June 15. Approved June 20. Public Law No. 156.

S. 380—King (H. R. 6237—Rogers)—Act to reserve 80 acres on the public domain for the use and benefit of the Kanosh Band of Indians in the State of Utah. Passed Senate March 29. Passed House June 15. Approved June 20. Public Law No. 155.

S. 1066—Hatch (H. R. 4541)—Act to extend the provisions of section 2 of the Act of February 28, 1925, authorizing reservations of timber, minerals, or easements to exchanges of lands in the State of New Mexico under the Act of February 14, 1923, and the Act of February 7, 1929, for the purpose of consolidating certain lands within the Lincoln National Forest. Passed Senate May 20. Passed House June 15. Approved June 25. Public Law No. 164.

S. 2185—McNary—Act to accept the cession by the State of Oregon of exclusive jurisdiction over the lands embraced within the Crater Lake National Park and for other purposes. Passed Senate May 1. Passed House June 15. Approved June 25. Public Law No. 165.

S. 2074—Byrd (H. R. 6734—Maverick)—To create a National Park Trust Fund Board. Passed House June 3. Passed Senate June 10. Referred to Public Lands June 14. Reported June 18. Report No. 1255. Passed Senate June 27.

H. R. 7160—Jones—Act to provide for research into basic laws and principles relating to agriculture and to provide for the further development of cooperative agricultural extension work and the complete endowment and support of land grant colleges. Passed House May 15. Passed Senate amended June 10. House agreed to conference report June 26. Passed Senate June 28. Approved June 29.

NATIONAL FORESTS

S. 2649—Hayden—Providing for recreation area within Prescott National Forest, Arizona. Report 744. Passed Senate June 10. Referred to Agriculture June 13.

H. R. 6910—Rogers (S. 2396—Thomas)—Act to amend section 4 of the Act of May 31, 1933, enacted to safeguard the interests and welfare of Indians of the Taos Pueblo, New Mexico, in certain lands within the Carson National Forest. Passed House June 15.

S. 2695—Carey—An act to add certain lands to the Medicine Bow National Forest, Wyoming. Passed Senate June 25. Referred to House Committee on Public Lands June 27.

H. R. 3061—Samuel B. Hill—Authorizing the adjustment of the boundaries of the Chelan National Forest in the State of Washington. Passed House June 15. Report No. 936 by Senate Committee on Public Lands and Surveys June 26.

H. R. 6678—Mott—A bill to add certain lands to the Rogue River National Forest in the State of Oregon. Report No. 1245 June 17.

H. R. 7224—Gearhart—A bill to conserve the water resources and to encourage reforestation of the watersheds of Fresno County by the withdrawal of certain public lands included within the Sequoia National Forest from location and entry under the mining laws. Report No. 1246.

NATIONAL PARKS

S. 2073—Byrd (H. R. 6670—Maverick)—An act to provide for preservation of historic American sites, buildings, objects, and antiquities of national significance, and for other purposes. Passed Senate June 10. Reported June 18. Report No. 1255.

S. 3197—Fletcher (H. R. 8741—Wilcox)—To amend an act entitled "An act to provide for the establishment of the Everglades National Park in the State of Florida and for other purposes," approved May 30, 1934. Referred to Committee on the Public Lands.

MISCELLANEOUS

S. 2052—Frazier and Ashurst—A bill to provide for the payment of taxes on certain lands acquired under authority of Acts of Congress. Referred to Committee on Public Lands and Surveys February 26.

S. 2665—Lewis (H. R. 7712—Cochran)—Changing name of Department of the Interior. To Expenditures in Executive Departments April 24. Senate hearings May 24. Referred to Senate Committee on Public Lands and Surveys June 19. House hearings June 4, 21 and 27, July 12 and 17. Senate hearings July 11 and 16. Reported out by Senate Committee July 16.

S. 2825—Copeland—Establishing a National Planning Board and the organization and functions thereof. To Commerce May 14. Public hearings June 13. Report No. 974.

H. R. 3019—De Rouen—Amending the Taylor Grazing Act of June 28, 1934. Reported (No. 1005) by Senate Comittee on Public Lands and Surveys with an amendment, July 2.

FORESTRY IN CONGRESS

By G. H. COLLINGWOOD

After six months, the Seventy-fourth Congress has shown no major accomplishments for forestry, although the administration of wildlife under the Biological Survey was given an impetus through the passage of H. R. 7982, which is described in the July issue of AMERICAN FORESTS. Among its several features the bill makes available more than $6,000,000 for the purchase and restoration of land for wildlife and migratory waterfowl refuges.

The persistent efforts inaugurated under the Lumber Code are still being carried forward. Not the least of these is an effort to devise a plan whereby the Federal Government may loan funds over satisfactory periods of time to forest industries. In accordance with statements made following a conference between President Roosevelt and Senator Fletcher, on July 5, this promises to be realized soon in a bill which the Senator is prepared to introduce before the end of the present session. In support of such a bill, Ovid Butler, executive secretary of The American Forestry Association, wrote the President on July 5. "One of the most important pieces of needed forest legislation in the conference program is creation of a permanent forest credits agency," said Mr. Butler. "Such an agency, we believe, is a key to the development of sustained yield operations by private industry. . . . We understand that Senator Fletcher has had prepared a forest credits bill for early introduction in Congress. Passage of this bill at the present session of Congress, we believe, may be an instrument in saving the Article X conservation program, and we, therefore, respectfully urge that you give it your earnest consideration and your approval for passage at the present session of Congress."

No action has been taken by the Senate Agriculture and Forestry Committee on the Fulmer Bill (H. R. 6914). The Secretary of Agriculture reported that the Bureau of the Budget declared the bill not at present in line with the President's financial program. "This proposal," wrote Secretary Wallace, "is desirable and should eventually be enacted. However, it is not absolutely essential at this time, and in view of the present financial situation, I recommend against its enactment at the present time." To expedite action by the Senate Committee a plan is being considered whereby the bill as passed by the House, on May 22, may be amended in the Senate to provide smaller Federal expenditures. It is known that the Department of Agriculture and the Forest Service are in favor of the bill, and with such a change, it is believed that the bill may be satisfactory to the Budget Bureau.

Hearings on the Cochran Bill, (H. R. 7712), to change the name of the Department of the Interior to the Department of Conservation and Works, were completed on June 17. Hearings on the Senate Bill (S. 2665), before Senator Lewis's Committee on Expenditures in Executive Departments, are published, but on June 19, at the request of Senator Hatch, the bill was referred to the Committee on Public Lands and Surveys. This committee amended the bill to allow Congress 110 days instead of sixty days in which to review the President's recommendations for bureau shifts, and approved the bill for Senate consideration. The House hearings were printed on July 22.

At the request of Representative Claude V. Parsons of Illinois the *Congressional Record* for June 15 published a list of all Congressmen in whose districts are forest purchase units. The gross area involved is 47,941,337 acres, of which 24,610,758 acres remain to be purchased at an estimated cost of $108,654,782. A few days later, it is understood, a meeting of the interested Representatives was called and an organization formed to cooperate with a group of Senators and to call upon the Forest Service, the Allocation Commission and, if necessary, the President to obtain Public Works funds for continuing the program.

No action has been taken on S. 2972, introduced by Senator Carey, to extend the boundaries of the Grand Teton National Park, in Wyoming. In a letter to The American Forestry Association, Senator Carey stated that public hearings are expected to be held before any action is taken. "I feel that on account of the elk situation and the necessity of providing for them that some action should be taken if possible," wrote Senator Carey. "A very bad situation has developed in Jackson's Hole due to the fact that the ranchers adjacent to the Biological Farm are insisting that either they be bought out or paid damages for the depredations of the elk. I do not care particularly about the balance of the bill being acted upon immediately, but I do think something should be done to take care of the elk situation."

Following approval of the act establishing the Big Bend National Park, in Texas, on June 20, Senator Sheppard introduced an amendment to the second deficiency appropriation bill, (H. R. 8554), to allot $50,000 for the purpose of surveying the area and determining the boundaries.

Senator Fletcher and Representative Wilcox, both of Florida, have introduced companion bills to amend the act of May 30, 1934, under which the Everglades National Park was created, by striking out a provision prohibiting the expenditure of public funds for administration, protection and development of the park for a period of five years. This clause was accepted in order to expedite the passage of the act, but because the Big Bend National Park Act was passed without any similar prohibition, the sponsors believe that their proposed amendment may secure approval by the director of the Bureau of the Budget. The second deficiency bill, which passed the House and is now before the Senate, also includes for consideration an appropriation of $50,000 to permit the Geological Survey to survey and map the area of the proposed park.

On June 13, at public hearings before the Senate Commerce Committee on S. 2825, Frederic Delano and others explained the purpose of the National Planning Board and urged its establishment under the bill introduced by Senator Copeland.

No action has been taken on H. R. 6594, to authorize the National Park Service to make recreation studies of Federal lands, including those administered by the United States Forest Service, but a similar bill, S. 738, has been reported favorably by the Senate Public Lands Committee.

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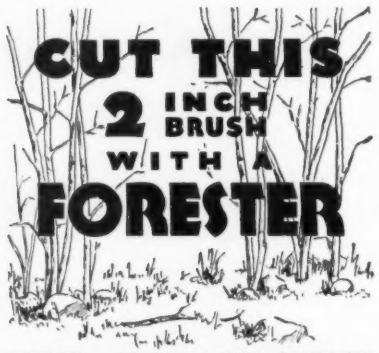

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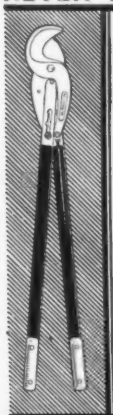

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FIFTY YEARS IN CONSERVATION

(*Continued from page* 357)

The first planting in the Adirondacks was made in 1899 in connection with training of students by the former New York State College of Forestry, at Cornell University, and the first coniferous tree nurseries were established by it the same year. Thus the educational policy expressed in the Law of 1885 made possible the beginning of forest planting on a sound technical basis. Planting in the Catskills, in 1899, was the first undertaken by the State. The first state plantations in the Adirondacks were set out in 1902 near Lake Clear Junction. In the same year the first state nursery was established.

The impetus to private planting came in 1908 through the adoption by the State of the policy of distributing stock at cost for purposes of reforestation. No other forestry activity has received so wide publicity in the State. It has been furthered by the Conservation Department, the Agricultural Extension Service, educational institutions, fish and game clubs and other organizations. Including the year 1934, approximately 368,000,000 trees have been distributed. In 1934 there were 48,500,000 trees sent out from the state nurseries.

Ten years of nursery work and forest planting guided by technically trained foresters put the State in a good position to meet the problems of an enlarged reforestation program when it came.

Agricultural economic investigations nearly a decade ago had revealed the steadily increasing abandonment of farm lands which had become unprofitable for agriculture. Not only were thousands of submarginal lands abandoned annually but the aggregate acreage had become huge. A study of the situation by a commission in 1928 brought forth a program of reforesting a million acres during a fourteen-year period on a graduated appropriation of $20,000,000. The necessary legislation resulted in the adoption of the Hewitt Reforestation Amendment. The State Conservation Department has handled the great additional volume of work readily enough and despite reduced appropriations in recent lean years the acquisition of land and reforestation have proceeded satisfactorily. The Civilian Conservation Corps has aided greatly in furthering the program during the past two years.

The enlarged reforestation program, like the protection of forests from fire, has carried the effective organization of the Department far outside the Forest Preserve. An excellent district organization has resulted in effective handling of this program and is basic to wise management of productive state forests well distributed over the State. It is not only desirable that the State proceed in its plan of reforestation but eventually round out its holdings in the various districts by acquirement of land now bearing second growth forests from which, under management, an early flow of useful products may be anticipated. The reforestation areas already acquired possess only a relatively small proportion of woodland and returns from plantations cannot be expected in quantity for a generation.

Outside of the Forest Preserve, lands have been secured for other purposes that deserve mention. Notable among these are the game refuges and shooting grounds. Hunting and fishing have become and will probably always remain of very great importance in New York State. Its great population and its interest in these sports requires ample provision.

The wildlife in the Preserves was an early source both of profit and of recreation. The Indians went to the mountains for beaver; the white man has from very early days penetrated the wilderness to hunt and fish. New York State has given the conservation of game great attention and through the years developed to a high degree its propagation of fish and game as well as improved its laws safeguarding the supply. It was in the nineties that the Fisheries Commission was combined with the Forest Commission under the name of the Fisheries, Game and Forest Commission. This forms now a great division of the Conservation Department.

Recreation by hunting and fishing carries with it new conceptions of land use but with the advent of easy, quick transportation by automobile the requirements of people for new recreational places increased. The word "park" took on a new significance. Long before this time New York State had recognized the significance of recreation. It acquired the American side of Niagara Falls from private owners just before 1885. This state park was opened to the public on July 15, 1885, and so it is linked with the observance of the Conservation Anniversary.

The park idea has been strongly supported in the State. It found expression in the creation of the Adirondack Park, in 1892, which in the words of the act shall "be forever reserved, maintained and cared for as ground open to the free use of all the people for their health and pleasure, and as forest lands necessary to the preservation of the headquarters of the chief rivers of the State, and a future timber supply." Thus the recreational value of the forest was again recognized as it had been previous to the Act of 1885.

The era of state parks, outside the Adirondack area began in 1909 with the creation of the Highlands of the Hudson Reservation, later to be known as the Palisades Interstate Park. The estimated number of visitors to this park alone was placed at 8,000,000 in 1934.

Through gift of land and money contributions, state appropriation and bond issue, the State has acquired a wide variety of places of great scenic and recreational value. A unified State Park program has been created and the administration in 1927 was placed under the Conservation Department and the Council of Parks. The Allegheny State Park contains 65,000 acres, nearly all of which are in forest, and the Palisades Interstate Park is next largest in area, containing 47,200 acres. The total area of park and parkways outside the Forest Preserve is approximately 200,000 acres.

The State is committed to the development of a unified park system on a regional basis. It has reached what might be termed the planning stage not only in parks but in almost all principal activities. In the past, New York has recognized the needs of its citizens promptly and has done the immediate thing, building up its future policy gradually. The development of conservation in all its aspects requires planning so that it is integrated with other state developments.

The first step toward state planning was taken when the Governor appointed a State Planning Board, in 1934. The result has been a preliminary report outlining the proposals for development of the State in all its important aspects—land, water, forests, recreation, wildlife, highways and transportation and the like. The legislature this year established the Planning Board as a permanent body to guide development of the State through investigations and advice.

EXPLORING CAVERNA DEL ORO

(Continued from page 359)

wandered over the whole new world, making and remaking civilization. Santa Fe, the ancient center of the frontier, slumbers in the crystal prairie valley not far from the southern Colorado boundary. And indications are clear that the explorers of old continued from this capitol up into the lofty Sangre de Cristos. There they may have found the glittering Holy Grail; or more plausible, they could have hidden their treasure, expecting soon to return.

The region's first white settler, who was not Spanish, was A. H. Heinrich, who settled upon some ground at the foot of Marble Mountain. While digging potatoes in the fall of 1867, he saw two Spaniards, each driving a wagon filled with ore. He intended trailing them the following day, but that night the winter snow came and did not lift until late spring.

Forest Ranger Paul Gilbert related the tale told to him by Mrs. Apollina Apodoca, who died eight years ago at the reputed age of 110. She was devout and revered the historical past, for she claimed she was a descendant of the first Spanish explorers. She never tired of telling of Caverna del Oro, with the assurance it was full of fabulous riches. One hundred years ago, while a mere child, she had played about the mouth of the yawning chasm. Even then, its interest was buried treasure, for brown-skin pioneers removed from it quantities of gold. But the entrance the Maltese Cross marked was not the only one. The main opening was farther down, and it connected with subterranean passages which honeycombed the whole range.

According to the ranger, Mrs. Apodoca never completed her strange story without telling of the revolt of the Pecos Indians, whom her progenitors used as slaves to work the gold mines. With murmurs of discontent, the red men threw down their hammers, walked away, and united for an attack. The Spaniards fled into the lower entrance, and day after day, climbed the ladders and fought off the Indians, who attacked them from above. After great loss, the Spaniards conquered.

The story told by the pioneer woman seems to be trustworthy. The Spaniards certainly must have used the cave in ancient times, for their old breastwork fort of logs and boulders, surrounded by six stone-lined rifle pits, sits on a commanding hill 1,000 feet below the cave's entrance.

The timbers of their ladder system were about eight inches in diameter and were squared on four sides with an ax. Auger holes were bored into their sides, and they were fitted with wooden rungs pegged into the holes. No nails were used, although this probably would have been done if they had been built by early Germans or Americans. These timbers are now decayed and may be broken in many instances by hand.

A strange legend that still haunts the native people concerns a skeleton, hung with buckskin, which guarded Marble Cave just on the other side of Caverna del Oro. It was the first quarter of the nineteenth century, and an American free trapper wandered too far west. The Spaniards, for fear he would reveal their hiding place, crucified him. For a half century he remained pinioned to a wooden cross. At length an exploring party, thought to have been the foremost of Fremont's expedition, gave him a decent burial. But the story still persists that the buckskin ghost calls the Marble Cave his own.

But why the mysterious Maltese Cross? Could it be the burial place of a great leader whose disciples have passed the tradition of its safe-keeping down through the years? It is known for a certainty there lives at this moment a person, or group of persons, who have its interest much at heart. Otherwise an attempt would not have been made to obliterate it.

Tradition tells of a Spaniard who was revered by all his fellows. He held councils of wisdom down in one of the pits for those who sought the permanent things of life. His disciples went on a long journey of several weeks, and he preferred to stay alone in his cave of solitude. A huge boulder fell, pinned him in, and his friends, upon returning, found him dead. Those who cherished his memory marked the place with the cross.

It cannot be said for sure that any of these stories are entirely true. The Maltese Cross, the many caves, the old fort, and the decayed timbers are there to be considered. Probably the vivid mouth-to-mouth lore has a real basis. It has been embellished by those who have passed it on from one generation to another. We who live today stand bewildered; but not so the fathers of bygone days. Their unbounded imagination saved the day when there was a loss of authentic facts.

There is a scientific basis for the assurance that gold lies within the cave's recesses. The caves occur in limestone formation, which lies upon the flanks of the Sangre de Cristo Range. This sedimentary rock may be several hundred feet in thickness. All the passages are waterworn channels, and if gold occurs at all, it is between the limestone and the granite.

There are definite causes why the range has remained in everlasting obscurity. Seen by the early explorers, its ruddy glow, scintillating like a thousand stars, made them exclaim in contemplative wonder. Its beauteous form was heralded as far south as the Rio Grande. But no one thought of building a home in one of its canyons. Its igneous rock bed is unsuitable for farming, and generation after generation has viewed its splendor from afar

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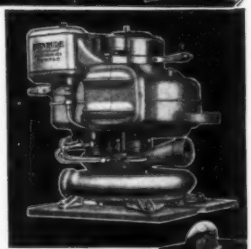

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8-35

FLASHES IN THE NIGHT

(*Continued from page 363*)

penetrate far through fog banks.

In high speed flashlight photography, we build a platform on the front part of our duck boat so as to hold two cameras—one for a still picture and the other for action. Our powder is fused in sealed paraffined pill boxes, holding three-quarters of an ounce each. Two are used on each lamp. While battery-wire and push buttons set off the fuse and ignite the powder, the recoil will press on a four foot release, connected to a lamp, tripping the shutters, which are set at 1/200 and 1/300 part of a second. At this speed, fast lens work is necessary, so we open to 4.5 or 3.5, which is wide open, to get enough light.

The supports holding the lamps are above and behind the cameras. Strange as it may seem, the jar to the boat from encased powder would result in a double exposure were it not for the fact that springs to offset it are built in the pipe framework of the supports.

Before describing how we make set-ups so that animals will take their own pictures, I want to cover one point that has been overlooked. How can we get so close to deer without their scenting us? My own opinion is that there is something about night air over water that deadens the scent. Sometimes a drifting wind will give us away, but if windy one might just as well stay in camp.

Another help is that deer are so busy feeding and fighting flies that they are not so wary as in the daylight, and are less apt to look for intrusion. But once a wise old buck thinks something is wrong, one might just as well wait for another season before trying to get up to him with a jack light. It just can't be done.

Now to induce creatures of the wild to take their own pictures. This is done by traps, and the method of "taking" is similar to that used in boat work. My first subject was a great blue heron filling his crop by a spillway about half a mile from camp.

I placed a moisture proof camera in position to take in a birch tree and a bit of water, while Del Bellinger, my guide, caught a small fish. This, still alive, was placed on the end of a fine brass wire, so arranged that the fish could swim around to attract the heron, yet not get out of focus. The wire was then run to a support holding the electric flash lamp near the camera, and from this it was routed under a staple or pulley and connected to a little chain dangling from the lamp. Wires from a three cell battery were then properly connected with the fuse wires. This accomplished, I set the shutter at 1/100 part of a second, the camera having been already focused at twelve feet, pulled the slide and returned to camp to await results.

They came quicker than expected. When the flash went off we were eating our evening meal and did not hear it. But a neighboring camper heard the report and brought us the news. And one thing is certain, it didn't take us long to get that glass negative in a developing tray. The image to come up could have been a mink or a coon, but it wasn't. Our little red light soon showed it to be what we made the set-up for, which isn't always the case. So that pretty birch tree did make a nice setting for a "Great Blue Heron".

If one doesn't mind being aroused from his slumber, he can often get a coon to pull a flash right by camp by baiting with tuna fish or cheese—while a sucker hung up within reach of his paws will seldom fail to do the trick. We have coaxed mink into taking their own picture by tying up a little chunk of tuna fish in a piece of cloth, which has to be well wired or they will eat it out without giving the necessary pull. Once an owl took what would have been a nice picture of himself had he not turned his back on the camera. We even fooled a young grey fox into doing it—showing her braced and wary as she pulled the bait. Skunk pictures can be taken by baiting, too—which is the best way.

When we were at Little Woodhull Lake we tried time and again to get a beaver picture that way. We would run a wire across the creek near their dam on the outlet so when they swam against it their picture would be taken. But it didn't work, and we were stumped until the idea struck me to use a small poplar limb to take the place of the fish. And sure enough, the bark being their food, it worked.

One time we set up two cameras near a tree where a beaver had been working—arranging a wire so that a push from a beaver would set off the flash, also baiting the wire with tuna fish in the event a coon should find it. One did.

We had a little different arrangement for this fellow. The two cameras were focused on the cut in the tree with one lead of wire to the bait. The first lamp to go off was arranged in the usual way except that we tied a string around the edge of the box of powder, then ran it to and through a screw eye below the chain on the second lamp. We then tied a small weight to the end of the string—about two feet below the screw eye. To complete, we tied another piece of string to the end of the chain and made the other end fast to the string just below the screw eye. This left it so the weight would drop when the string would burn as the first flash went off, and the weight in its descent would pull the string attached to the chain of the second flash making the second camera take the animal's getaway. And a coon did it.

Have I ever succeeded in getting a deer to take his own picture? No! And I have tried a number of times. I won't say it can't be done, as I have seen pictures so taken in parks and preserves, but perhaps our deer are wilder.

And now, back to boat work for another thought. It might seem like a simple matter to rig up an old scow for a double picture showing the actual taking of a deer by flashlight. So it seemed to us until we had followed that scow around the shore of Little Woodhull Lake night after night endeavoring to get it and the deer in position so that we could cover both scow and deer with the cameras on our duck boat. We trailed along about twenty feet behind, heavily loaded with powder, awaiting the opportunity for my partner in the bow to fire the flash.

Our object was to get the scow about fifteen feet from the deer and have the duck boat pointed between the deer and scow at a distance of forty feet, and at an angle of forty-five degrees. From my paddling seat in the duck boat, I was to whistle when the setting was right. Then Antone in the bow of the scow was to fire his flash and Everett Clark, my boat partner, was to let his flash go just the second Antone's went off. But things didn't work quite as planned, and while it may not be in good form to tell our troubles, they happen to be a part of my story.

The jack light could only be on the front boat, which made it difficult to follow the leading boat in the dark and be at the right distance and angle at the crucial moment. When we would be, the flash on our boat didn't go quickly enough on two attempts, the drift of the wind carrying the smoke of the first flash so that it showed up over the paddler's head

instead of over the flash lamp. The third drawback was the fact that the deer, aside from the one we were after, would see our boat through the darkness, spoiling our opportunity by snorting and giving things away.

But we finally succeeded in taking a doe running to cover and about two-thirds of the scow. The picture showed good action, but my failure to have the duck boat pointed so as to take in the stern of the scow left a much chagrined paddler—he having dressed up in a picturesque outfit for the occasion.

I have been so busy with my own activities that I nearly overlooked keeping harmony in the family. To this end, it might be well for me to incorporate in my story the fact that Mrs. Roberts pulled the string that flashed the picture of the "Two Bucks" which was used in making the combination picture. She will never forget that night and in speaking about it seldom fails to tell that I used her head for a tripod to steady myself in the boat when reloading the flash pan.

Cold spells, fog, wind and rain have marred the success of many a trip. But that's all in the game, and all winter I wait for those antlers to get in shape for other thrills. I have one special thought in mind when I say this—that is to have a buck step in front of my jack crowned with a headgear such as I saw on one at Little Woodhull Lake in daylight. I had to get my field glasses to assure myself whether he was carrying a rocking chair on his head or antlers.

MAGIC OF DIAMOND HITCH

(*Continued from page 375*)

pass there are bleaching bones to attest someone's carelessness in permitting occurrences such as those mentioned. In my own mountain experience I do not know of one instance when a good trail mule was lost if properly packed, unhampered by other animals or men and strictly "on his own."

Occasionally there are "bad" mules, born full of inherent "devilment" and made worse by wrong handling and abuse. Usually these outlaws of the breed possess super-intelligence, all of which is applied in hatred of their handlers They are dangerous.

Young, unbroken mules are as wild as mustangs when first brought in from the range and dangerous to handle until they understand man and his requirements. Each animal possesses character and temperament as individual as ours, and calls for study by the competent trainer. The young mule will become gentle and learn his trade in a remarkably short time, for the lessons are brief and stern and his memory is keen;—dodging the lariat will only result in the noose tightening uncomfortably around his throat; if he lags in the pack train a chain will be placed around his lower jaw and hitched to the mule ahead. He may try once to "buck all over the landscape" to dislodge the hateful pack before learning it is there to stay.

On the trail he will soon learn the dangers to be avoided and his remarkable instinct will at once establish in his mind the width and height of his pack; and never will he let it catch an obstruction, where the resulting jar might throw him from the trail.

But, even with the finest of pack mules, the major responsibility remains with the packer. Particularly does this apply in large scale packing in our western mountains as practiced by forest rangers and stockmen, where articles of every conceivable nature must be transported over bald, granite walls and peaks that scarcely seem to offer foothold to a mountain goat. The animals can do their work only when every little item is right. A loose lash rope or pack saddle cinch must have instant attention, even with the pack string stopped on a narrow shelf overhanging a thousand-foot drop into space, for a turned pack might plunge them all over the edge.

A tiny rock wedged into the frog of a hoof will induce a limp, a stumble and very easily a similar sad result. Even a wrinkled saddle blanket with its resulting bruised back may precipitate a bucking exhibition that will embroil all the animals—and the packer—in a dangerous predicament. These possibilities and countless others, the packer must watch for throughout the day; and to anticipate them as far as possible, he must each morning when packing up, attend carefully to scores of other details. Each mule must be fitted with his own saddle, shaped to his back; the pad must be thick, and laid on smoothly.

Assorted camp equipment—food boxes, bed rolls, sacks of grain, tools—an endless variety, must be segregated into pack loads with the side packs, which are carried in kyacks or boxes, exactly balanced for weight, as an uneven load will turn the saddle later in the day. Top packs, likewise, must not increase the total weight too greatly.

Perhaps the greatest undertaking in modern day packing in the west is during the annual month's vacation each summer of a large mountaineering club. The route chosen is always through the roughest regions of the high Sierras and covers 100 miles or more of rocky, almost unworked trail. The food for the party of 150 to 200 persons weighs about ten tons; there are a half dozen huge sheet-iron cookstoves; stacks of large duffle bags, many tents, and great nested stacks of wash tubs and cooking utensils. From 70 to 100 pack mules carry this veritable moving hotel from camp to camp, some days traveling a distance of twenty miles. Each night every item is in its place, the cook fires are blazing merrily, the great kettles are bubbling with savory food for the weary hikers. And always, next morning, those efficient little wizards of the trail walk sedately forward.

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"CALLING ALL RANGERS!"

(Continued from page 367)

The rated working range is about fifty miles. This set operates on 110-120 volt sixty cycle alternating current—ordinary commercial current—and not on batteries or other direct current power. It is used where commercial current is available such as at supervisor's headquarters, and at some of the fire equipment warehouses. It is also used in conjunction with a portable A.C. generator as a central communication station on large forest fires.

Type T radiophone transmits and receives voice only. It weighs from thirty to 100 pounds, depending on the type of battery used. This type and the Type S radiophone operate on ultra-high frequencies in the vicinity of nine meters. Consequently, they are only for use between intervisible points or over optical paths. The Type T radiophone is designed for standby operation and has a built-in loud speaker. With this set, it is possible to talk and receive simultaneously when working with another Type T radiophone.

Type S radiophone transmits and receives voice only. It weighs about nine pounds. This set is recommended for use only between intervisible points. It is being used by smokechasers and by fire scouts and fire chiefs on large fires; also occasionally by patrolmen. Its principal feature is its portability and the quickness with which it can be put into operation. It may be used with an antenna fifteen feet long, or with a shoulder-strap antenna. Both the Types S and T radiophones have been used for two-way communication with moving vehicles, though the Type S has been more generally used for this purpose because of its compactness.

All of the current models of Forest Service radio transmitters are crystal controlled except the ultra-high frequency equipment.

At present the Forest Service has about 700 radio stations. This is but a fraction of the ultimate needs, so the number of sets is constantly increasing as funds are available. The majority of the sets are located in Montana, Idaho, Washington, Oregon and California, where the need for supplementary communication has been greater than in the eastern forests.

It is interesting to note in passing that although the equipment was designed primarily for Forest Service use, other governmental departments and bureaus such as the Navy, Bureau of Lighthouses, Park Service, and Indian Service have also bought Forest Service radio sets.

Though radio is rather widely used in the Forest Service, and notwithstanding its advantages in forest protection communication, it is not a cure-all. There are regions where there is little or no need for radio. It should not be used simply because it is new and novel, nor should it be used haphazardly any more than a telephone network should be installed haphazardly. Radio investments should be based on a well developed plan, involving consideration of fire fighting methods, available telephone facilities, communication requirements and transportation facilities. Obviously, where it is possible to reach any part of a forest protection unit quickly and where fires are of short duration, there is less need for communication, especially radio communication, than where travel is slow and difficult or where fire camps may be established for days or weeks. In regions where the fire detection force is flexible, that is, where the primary lookout system is augmented during bad fire-weather periods by emergency lookouts and patrolmen, radio may be the only practicable means of maintaining contact with the emergency force.

In order to have them readily available for fire fighting duty, it is necessary for the fire chief to be able to contact the various improvement forces within his district, such as road and trail crews, and other forest improvement groups. Often radio may be the only means of maintaining such contact, and for lack of it during bad fire-weather periods, it may even be necessary to hold the men in more or less idleness at some point where telephone service is available.

On the Chugach National Forest, in Alaska, where, contrary to popular concept, they have a vicious type of fire peculiarly their own, the road crew carried its portable radio out on the job during the day and brought it in to camp at night. Thus they kept in close contact with the fire dispatcher, yet were able to continue their road construction uninterruptedly except when actually called to a fire.

Used in forest protection work where other means of communication are not available, radio extends communication beyond the telephone lines. Heavier sets such as the Type SP are located at points where telephone service is available, and these stations communicate with smokechasers, patrolmen, rangers, and road and fire crews in the field who are equipped with the portable apparatus.

In rugged, heavily timbered country, it is often difficult for a crew to find a small fire. On the Chelan National Forest, in northern Washington, the smokechasers carry a small pocket mirror as well as a radio set. When they have difficulty in locating a small fire they set up their radio set and call a lookout station that is within sight. By flashing their mirror as a heliograph, the lookout is able to determine their location with respect to the fire and can give them additional travel directions by radio.

Ultra-high frequency radio is especially useful in tying in emergency lookouts to the general detection net. Not infrequently, lack of communication facilities may prevent the use of an emergency lookout point. Where it is necessary to build and maintain a long telephone line for a possible use of only a few days each year, it may be impracticable to occupy points that can be served by radio with a small investment. Ultra-high frequency sets such as the Type T offer peculiar advantages over the ordinary radio for this class of service. The receiver is operated continuously as long as the lookout is on duty, thus making it possible to call him at any time without the necessity for prearranged schedules. Moreover, the ultra-high frequencies are relatively static-free and it has often been found possible to communicate by ultra-high frequency radio through thunderstorm when telephone communication was impossible.

Radio is being used intensively on project forest fires. This is especially true where there are little or no telephone facilities or where, as often happens, the fire has destroyed a part of the line.

A typical radio net on a large project fire would be: An M set at the base camp, with PF or SP sets at the various fire camps. The lookouts covering the fire would also be tied in to the fire camps by radio. Fire scouts and packers would carry PF or S sets and in some instances, the sector bosses have carried portable sets with them on the fire line.

The use of radio in the Forest Service is not limited to fire alone. It has furnished the only means of communication during disastrous floods, particularly in the Pacific Northwest. It has often proved a valuable aid in coordinating the activities of searching parties for lost or injured mountain climbers.

Although engaged in essentially the same business as the Forest Service, state and private forest protection agencies have made but little use of radio. This unfortunate situation arises not from lack of need or inclination on the part of these agencies, but because of the restrictions imposed by law on the use of radio by non-federal agencies.

Non-governmental agencies are required to obtain construction permits and station licenses for their radio transmitting equipment. The transmitters must be operated by licensed operators. The time required to obtain construction permits and station licenses makes it necessary to anticipate radio set requirements considerably in advance of the actual needs, so if a large fire should suddenly create a demand for additional radio equipment, the fire would be either out or long gone on its way to destruction before licenses could be obtained for the extra radio sets.

Another major difficulty in the way of state and private use of radio for forest protection communication is the lack of radio channels. True, there is a channel (2726 kc) set aside for "Special Emergency" radiophone communication, and another for radio telegraph only (3190 kc), but communication in these channels is limited to periods during which an emergency such as a flood, conflagration, earthquake disaster, or similar catastrophe actually exists. For example, it is not at all likely the Federal Communications Commission would permit use of these emergency channels to communicate with an improvement crew, a patrolman or an emergency lookout unless it concerned a fire actually in progress.

However, should the regulations which define the use of the "Special Emergency" channels be changed to permit "Special Emergency and Forest Protection" communication with radiophone authorized on both channels, it would go a long way towards placing state and private forest protection agencies on a par with federal protection agencies in the use of radio.

ISLE ROYALE MOOSE

(*Continued from page* 372)

party established on Isle Royale, if live-trapping is undertaken on a fairly big scale, with a goal of perhaps 100 to 150 animals, to be taken and held for shipment to the mainland, to form there the nucleus of a new herd, a purpose to which nine of the eleven trapped this last winter have already been dedicated.

Whether such a winter trapping program will entirely solve the problem is doubtful, however. The moose can hardly be taken fast enough by that method to relieve the situation, and certainly trapping can not be considered a permanent remedy to be kept up winter after winter.

It seems almost certain that further losses by starvation will thin the ranks of the moose herd next winter, despite whatever efforts are made. Nor will it be surprising if Michigan finally decides on a limited moose hunting season on Isle Royale, carefully planned and controlled, as more humane than starvation and as the only practical and feasible means at hand of thinning the herd efficiently and quickly, and maintaining it at a level where the sparse browse of the island will support it and stage a gradual comeback.

Sentiment on one point was unanimous among those of us who listened that April to Hickie's story on winter conditions, who saw the next day the moose that had died of hunger. It would be more merciful and sensible to shoot the last animal off the island than to let it die that slow death of starvation!

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PINCHOT ASSAILS TRANSFER

(*Continued from page 364*)

has challenged my opposition to this bill (Lewis-Cochran Bill) on the ground that such opposition indicated a lack of confidence in the President, who would be provided with a broad grant of power to transfer or consolidate bureaus with the consent of Congress in the interest of administrative efficiency," he said.

"The wording of the second section of the bill shows that those who drafted it have little confidence in the President or in Congress. It is not a broad grant of power to the President to transfer or consolidate bureaus and agencies with the consent of Congress in the interest of administrative efficiency. It thoroughly circumscribes such transfers.

"The statement has been made that the bill is intended to give the President broad powers in the interest of efficiency, yet it limits those powers in the case of the Department of the Interior. If it is desired to give the President these broad powers, and I am entirely agreeable to the extension of powers to transfer in the interest of efficiency, why not extend to the President, simply and directly, authority to transfer and consolidate bureaus with the consent of Congress without subtle reservation and a change in name, which carries mandatory implication, and without limiting such shifts?

ANNIVERSARY MEETING

(*Continued from page 376*)

are available. By airplane, it is within two and one-half hours from New York City.

Hotel accommodations may be had at rates beginning at $3.50 a day, American plan. Those desiring rooms without meals can be accommodated in the village rooming houses at rates ranging from one dollar a day. By special arrangement, membership rates will be extended to those attending by the Lake Placid Club, which begin at $5 75 a day, American plan. Reservations at hotels and at the Lake Placid Club will be made by The American Forestry Association for its members and their guests. These should be made early, in view of the large attendance expected. Write the American Forestry Association, Washington, D. C.

AN EXPLANATION

In connection with the article "Do Eagles Steal Children?" by Alexander Sprunt, Jr., which appeared in the June issue of AMERICAN FORESTS, an Associated Press account, dated April 13, of an eagle seizing a young boy in Tennessee, was reproduced without an explanatory caption.

A reader has raised the point that publication of this news account, without explanatory matter, contradicts the evidence presented by Mr. Sprunt that newspaper accounts of eagles attacking children when investigated, proved, in his experience, to be untrue. Feeling that others may have had the same reaction, the Editor wishes to state that the Associated Press story was reproduced to show that even in this day and time an account of an eagle attacking children is "front page" material. It was his opinion that, in connection with Mr. Sprunt's article, the reproduction would speak for itself, and that an explanatory caption was unnecessary. Whether the report was true or false was a matter for investigation. It proved to be false.

WHO'S WHO

Among the Authors in This Issue

SAMUEL N. SPRING (*Fifty Years of Conservation*) has been Dean of the New York College of Forestry, at Syracuse, since 1933. After graduation from the Yale Forest School he served with the Forest Service before organizing the forestry school of the University of Maine. He returned to the Forest Service in 1905 as Chief of the Office of Forest Extension. From 1909 to 1912 he was State Forester for Connecticut, following which he traveled extensively in this country and abroad lecturing and studying the problems of silviculture.

HOBART V. ROBERTS (*Flashes in the Night*) was born and still makes his home in Utica, New York. Following his graduation from Peekskill Military Academy he entered his father's business firm and remained associated with this until he recently retired. He is a member of the Utica Camera Club.

Hobart V. Roberts

CLAUDE M. KREIDER (*The Magic of the Diamond Hitch*) lives in Long Beach, California. More attracted to the desert and mountains than to the sea, he spends all his available time exploring and fishing, and in scaling interesting peaks of the Sierras.

RAYMOND W. THORP (*Exploring Caverna Del Oro*) is an author and journalist who lives in Los Angeles, California. For the past three years he has been studying and writing about nature, spending most of his time on spiders, scorpions and centipedes. He recently spent a year in Colorado where he became acquainted with the story of Caverna Del Oro.

GRIF ALEXANDER (*Unhurried*) lives at Green Holly, Maryland, where for the past five years he has been an "amateur gardener and woods man." He was formerly a reporter and special writer on the Pittsburgh *Dispatch* and later was an editorial writer and columnist for the Philadelphia *Public Ledger*.

BEN EAST (*Starvation Stalks Isle Royale Moose*) is Nature Editor of a chain of Michigan daily newspapers. This article is a sequel to a previous one, *Must the Isle Royale Moose Starve?*, which was published in the March, 1935, issue of AMERICAN FORESTS.

A. G. SIMSON and F. V. HORTON (*"Calling All Rangers"*) are both connected with the Forest Service and are located in Portland, Oregon, where Mr. Horton is Assistant Regional Forester. Mr. Simson, who served for five years as a radio electrician in the Navy and later operated an amateur radio station, was employed by the Forest Service as a ranger and scientific aid.

CURT FOERSTER (*Private Life of a Cicada*) is a commercial photographer of Westfield, New Jersey, who devotes most of his time to writing and the illustrating of his own articles.

G. H. COLLINGWOOD (*Forestry in Congress*) is forester for The American Forestry Association.

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The ESTABLISHMENT OF NATIONAL AND STATE FORESTS where local and national interests show them to be desirable; the CONSERVATIVE MANAGEMENT OF PUBLIC AND PRIVATE FORESTS so that they may best serve the permanent needs of our citizens; the development of COMMUNITY FORESTS.

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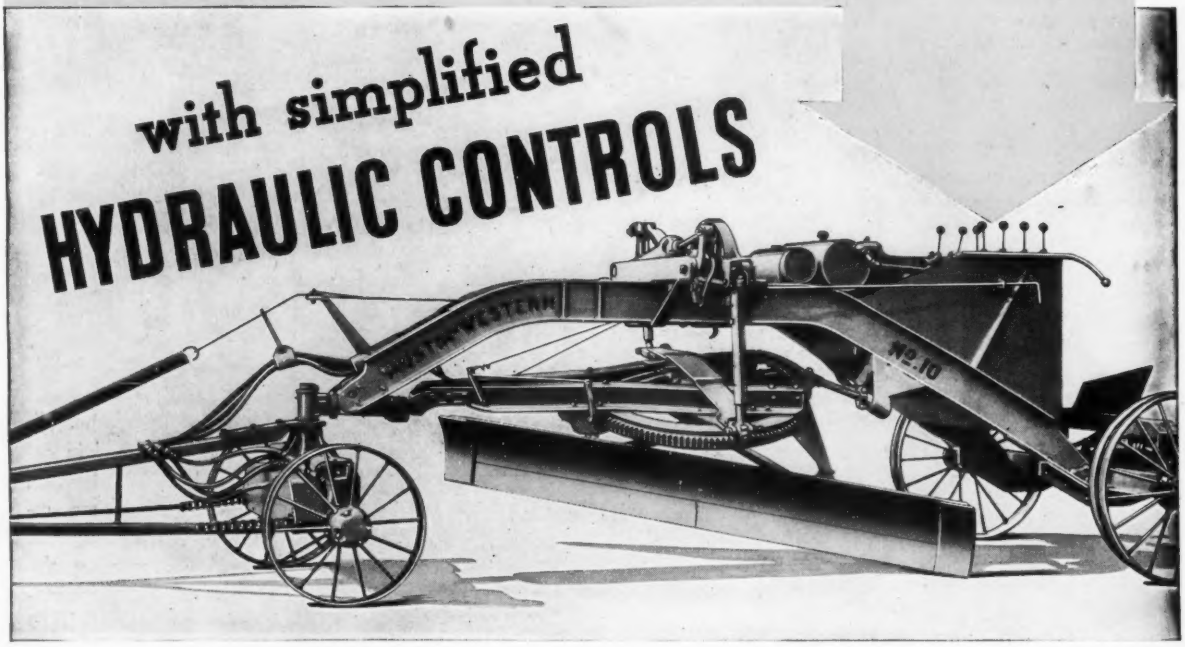

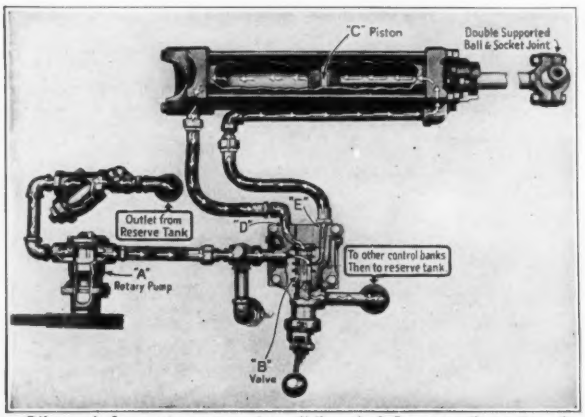

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